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[*Authors alone are responsible for the contents of their respective Papers.*]

GENERAL SIR WILLIAM F. P. NAPIER, K.C.B.[1]

THERE are few lives which offer a better subject for study and reflection to young officers, and which are so calculated to elevate the mind and excite to noble emulation, as that of William Francis Patrick Napier, the great historian and soldier.

The third son[2] of Colonel the Honourable George Napier,[3] son of the fifth Lord Napier of Merchiston, he was born at Celbridge, a small town on the Liffey, near Dublin, on the 17th December, 1785. His mother, Lady Sarah Lennox,[4] was the seventh daughter of the second Duke of Richmond, by Sarah, eldest daughter of Marlborough's famous lieutenant, Lord Cadogan.

William Napier received his only education as a day boy at an indifferent school in his native town, where he was remembered more on account of his determined and adventurous instincts than for any craving for study. His mind seems to have been early familiarised with scenes of trouble and danger. While a small boy at school, symptoms of the rebellion of 1798 had already begun to appear; and William's eldest brother, Charles, who, though an Ensign of two years' standing, was still his school fellow, had persuaded the boys to enrol themselves into a cadet corps in support of the Government. One day William was insubordinate on parade. Charles at once ordered him to be seized and tried by a drum-head court-martial. The court found him guilty; but he refused to accept the sentence. Thereupon the youthful commander ordered

[1] This memoir is compiled from, amongst other sources, "The Life of General Sir William Napier," by the late Lord Aberdare; from a notice by Colonel R. H. Vetch, R.E., in the "Dictionary of National Biography"; and from "Four Famous Soldiers," by T. R. E. Holmes.—R. H.

[2] Of his brothers, General Sir Charles Napier was "the Conqueror of Scinde," General Sir George Napier, Governor of the Cape, and Captain H. E. Napier, R.N., F.R.S., the historian of Florence.

[3] Colonel the Hon. George Napier stood 6 feet 2 inches, and was one of the handsomest men in the Army.

[4] At the age of seventeen, she captivated the youthful George III., and it was thought she would become Queen. Horace Walpole speaks of her as by far the most charming of the ten noble maidens who bore the bridal train at the subsequent marriage of the King with Charlotte of Mecklenburg.

him to be drummed out of the corps. With loud shouts the boys thronged round William, who furiously hurled his marbles among them, rushed upon the drummer, smashed the drum, and challenged the foremost of his assailants, who was much bigger than himself, to fight. In the struggle which ensued, William was soon beaten; but as he would not give in, the hearts of his comrades warmed towards him, and they voted that he should be allowed to rejoin the corps. When the rebellion broke out in 1798, he and his brothers were armed by their father, and assisted in the defence of their house at Celbridge, and afterwards at Castletown.

On the 14th June, 1800, at the early age of fourteen, William Napier entered on his military career as a second lieutenant in the Royal Irish Artillery,[1] from which he was, on 18th April, 1801, transferred to the 62nd Regiment as Lieutenant; he was placed on half-pay at the Peace of Amiens, in March, 1802.

On 23rd August, 1803, he was appointed a Cornet in the Royal Horse Guards, through the interest of his uncle, the Duke of Richmond, and joined the troop of Captain Robert Hill, Lord Hill's brother. While in the Blues, Sir John Moore, then forming his celebrated experimental brigade at Shorncliffe, proposed that young Napier should take a lieutenancy in the 52nd Regiment, at which he caught eagerly, and he was appointed on 24th December, 1803. Moore was so pleased by his readiness to learn his profession in earnest that he obtained a company for him in the 2nd West India Regiment on 2nd June, 1804, got him removed thence to the 6th Battalion of the Reserve on 16th June, and finally secured for him on the 11th August a company in the 43rd Regiment, belonging to Moore's own brigade. Napier threw himself into his duties with so much ardour and enthusiasm that his company was soon second to none in the regiment.

At this time Napier was exceptionally handsome, high-spirited, and robust. Six feet high, and of athletic build, he excelled in out-door exercises, while his memory was unusually retentive, and he had a rare facility for rapid reading. He was good at all games, and was a first-rate billiard player. In 1804, he made the acquaintance of Pitt, on the introduction of the latter's nephew, Charles Stanhope, an officer in the 43rd. He spent some time at Pitt's house at Putney, where he was treated with great kindness by Lady Hester Stanhope, and the great man was wont to unbend and engage in practical jokes with the two young officers. In 1806, Napier was selected to procure volunteers from the Irish Militia to serve in the Line, a duty which he carried out with considerable success.

In 1807, he accompanied the 43rd Light Infantry in the expedition against Copenhagen, was present at the siege, and afterwards marched under Sir Arthur Wellesley to attack the Danish levies assembled in the rear of the besieging forces. He took part in the battle of Kioge, and in the subsequent pursuit of the enemy.

On the 13th September, 1808, Napier embarked with the 43rd Light Infantry at Harwich for Spain, and arrived at Corunna on the 13th October.

[1] The Royal Irish Artillery was formed in Ireland in 1756, and incorporated in the Royal Artillery in 1801.

He reached Villa Franca on the 9th November, and took part in the campaign of Sir John Moore. Napier's company and that of his friend Captain Lloyd were employed in the rear guard to delay the French pursuit by destroying the communications. He spent two days and nights without relief at the bridge of Castro Gonzalo on the Esla river, half his men working at the demolition, and the other half protecting the workmen from the enemy's cavalry. Then he retired to Benevente, and to regain the Army had to make a forced march of thirty miles. During the subsequent retreat to Vigo, he was charged with the care of a large convoy of sick and wounded men, and of stores, with which he crossed the mountain between Orence and Vigo without loss; but the hardship suffered during this retreat, in which he marched for several days with bare and bleeding feet, and only a jacket and pair of linen trousers for clothes, threw him into a fever which nearly proved fatal, and permanently weakened his constitution.

On his return home in February, 1809, he was appointed Aide-de-camp to his uncle, the Duke of Richmond, Lord-Lieutenant of Ireland, but gave up the appointment to go with his regiment to Portugal in May. On the march to Talavera he was attacked with pleurisy, and was left behind at Placentia; but, hearing that the Army had been defeated, and that the French, under Soult, were closing on Placentia, he got out of bed, walked forty-eight miles to Oropesa, and, there getting post-horses, rode to Talavera to join the Army. He fell from his horse at the gate of Talavera, and was near being killed by some Spanish soldiers, but was saved by an officer of the 45th Regiment. He was soon carried off by his brother George to the light division at the outposts of the Army, and was afterwards in quarters at Campo Mayor, where his regiment, in six weeks, lost 150 men by the Guadiana fever.

At the fight on the Coa in July, 1810, Napier highly distinguished himself. On this occasion General Robert Craufurd, with 5,000 men and 6 guns, stood to receive the attack of 30,000 French, having a steep ravine and a river in his rear, and only one bridge for retreat. Napier rallied his company under a heavy fire, and thereby gave time to gather a force to cover the passage of the broken troops over the bridge. He received on the field the thanks of General Craufurd, his commanding officer, and Lieut.-Colonel Macleod. His company lost one ensign and thirty-five men killed and wounded out of the three hundred, the loss in the whole division. Towards the end of the action he was shot in the left hip; but the bone was not broken, and, although suffering considerably, he continued with his regiment until the battle of Busaco, 27th September, 1810, where both his brothers were wounded. He took part in the actions of Pombal and Redinha. At the combat of Casal Novo on 14th March, 1811, during Massena's retreat, Napier was dangerously wounded when at the head of six companies supporting the 52nd Regiment. Three times he attempted to lead his men at a critical moment, but they failed to respond. At the third attempt he was struck in the spine, and the enemy ungenerously continued firing on him when he was down. He escaped death by dragging himself by his hands—his

lower extremities were paralysed—towards a heap of stones, which gave cover for his head and shoulders. In the same fight his brother George had his arm broken by a bullet, while carrying his mortally wounded subaltern off the field, under a heavy fire. And it was after this fight that his brother Charles, hastening to the front with the wound that he himself had received at Busaco unhealed, met the litters carrying his two wounded brothers, and was informed that William was mortally injured. Napier rejoined the Army with a bullet near his spine and his wound still open. He was appointed Brigade-Major to the Portuguese Brigade of the light division. He took part in the battle of Fuentes d'Onoro on 5th May, 1811, and on the 30th was promoted Brevet-Major for his services, being one of the eleven captains of the Army specially selected by Lord Wellington. He continued to serve until after the raising of the second siege of Badajos, when he was attacked by fever. Ill as he was, he would not quit the Army until Lord Wellington directed his brother to take him to Lisbon in a headquarter *calèche*. Wellington took a great interest in the Napiers, and himself wrote to acquaint their mother whenever they were wounded. From Lisbon, in the autumn of 1811, Napier was sent to England, and in February, 1812, he married Caroline Amelia, daughter of General the Hon. Henry Fox, and niece of the statesman.

Three weeks after his marriage Napier, though far from being recovered, sailed again for Portugal, on hearing that Badajos was besieged. Before he reached Lisbon, Badajos was taken, 6th April, 1812, and his dearest friend, Lieut.-Colonel Charles Macleod, of the 43rd Regiment, had been killed in the breach. Napier was deeply affected by this loss. He took command of his regiment as the senior officer, having become a regimental Major on 14th May, 1812. About this time he was urged to enter the Portuguese service, and was offered the command of the 3rd Caçadores, but declined. At the battle of Salamanca, on 23rd July, 1812, the 43rd, with Napier at its head, led the heavy column employed to drive back Foy's division and seize the fort of Huerta. Napier rode twenty yards in front of the regiment, which advanced in line for a distance of three miles under a constant cannonade, keeping as good a line as at a review. After Salamanca, Wellington, with his victorious Army, entered Madrid on 12th August, and here Napier remained with his regiment until the siege of Burgos was raised, when the 43rd joined the Army on its retreat into Portugal.

Napier obtained leave to go to England in January, 1813, and remained at home until August, when he rejoined his regiment in the Peninsula as regimental Major. He landed at Passages, and found the 43rd Regiment at the camp above Vera, in the Pyrenees. On 10th November, at the battle of the Nivelle, Colonel Hearn fell sick, and the command of the regiment devolved upon Napier, who was directed to storm the hog's back of the smaller Rhune mountain. This position had been entrenched by six weeks' continuous labour on the part of the enemy. Napier and the 43rd carried it with great gallantry. When Lord Wellington forced the passage of the Nive, the light division, in which

was the 43rd Regiment, remained on the left bank, and on 10th December the divisions on the left bank were suddenly attacked by Soult. Napier and the 43rd were on piquet duty in front, and fortunately detected the enemy's suspicious movements, so that General Kempt was prepared. When the piquet was attacked, Napier withdrew without the loss of a man to the church of Arcangues, the defence of which had been assigned to him. Here he was twice wounded, once by a musket-ball in the right hip, again by the explosion of a shell. He did not, however, quit the field, and he continued to defend the church and churchyard until the 13th, when the fighting terminated by Lord Hill's victory at St. Pierre. Napier was promoted Brevet Lieutenant-Colonel on 22nd November, 1813.[1]

Napier was present at the battle of Orthez on 27th February, 1814, but his wounds and ill-health afterwards compelled him to go to England. On his recovery from a protracted illness he joined the military college at Farnham, where his brother Charles was also studying. The motives which induced these men, who had commanded with so much distinction in the field, to shut themselves up for two years within the walls of a college are well set forth in a letter of advice which, thirty years later, the Conqueror of Scinde addressed to a young officer :—" By reading you will be distinguished ; without it abilities are of little use. A man may talk and write, but he cannot learn his profession without constant study to prepare, especially for the higher ranks, because he there wants the knowledge and experience of others improved by his own. But when in a post of responsibility he has no time to read ; and if he comes to such a post with an empty skull, it is then too late to fill it, and he makes no figure. Thus many people fail to distinguish themselves, and say they are unfortunate, which is untrue. Their own previous idleness unfitted them to profit by fortune." On the return of Napoleon from Elba, Napier made arrangements to rejoin his regiment, and embarked at Dover on 18th June, 1815, too late for Waterloo. He was appointed a C.B. on the 4th June, 1815. He accompanied the Army to Paris, and, with the 43rd, was afterwards quartered at Bapaume and Valenciennes. On the return home of the Army of occupation, the regiment was sent to Belfast. Want of means to purchase the regimental lieutenant-colonelcy of his regiment, determined Napier to go on half-pay and seek for distinction in art and literature, since he was debarred by poverty from advancement in the Army. He accordingly retired from the regiment on the 17th June, 1819.

He was awarded the Gold Medal with two clasps for Salamanca, Nivelle, and Nive ; and on the institution of the Silver Peninsular War Medal in 1848 received it with three clasps for Busaco, Fuentes d'Onoro, and Orthez. But compared with others his services, strangely enough, had received but slight recognition. He was highly connected; was an officer of great merit, and held in high estimation by the Duke of

[1] The coattee worn by Napier at this period is now in the museum of the Royal United Service Institution, having been presented by his daughter, Lady Aberdare, in 1896.

Wellington; had seen much active service; had commanded a regiment in several general actions, and detachments nearly equal to a regiment in several others; had gained two brevets; and received three wounds, one of them so severe, as to leave him for the remainder of his days only a painful existence. Yet he was not wholly without compensation, for on his quitting the 43rd all the officers who had served under him, even those who had quitted the Service or gone on half-pay, or into other regiments, subscribed to present him with a very handsome sword, with a flattering inscription.

Napier took a house in Sloane Street, London, and devoted himself to painting and sculpture, for which he had considerable talent, spending much of his time with the sculptor Chantrey, George Jones, R.A., Mr. Bickersteth (afterwards Lord Langdale), and several old friends of the Peninsula. He contributed to periodical literature and wrote an able article, which appeared in the *Edinburgh Review* in 1821, on Jomini's "Principes de la Guerre." In connection with this contribution he visited Edinburgh, where he made the acquaintance of Jeffrey and other literary celebrities. He also visited Paris with Bickersteth, and was introduced to Soult.

In 1823, on the suggestion of Lord Langdale, Napier decided to write a "History of the Peninsular War." He lost no time in collecting materials. He went for some time to Paris, where he consulted Soult and then to Strathfieldsaye, to be near the Duke of Wellington. The Duke handed over to him the whole of Joseph Bonaparte's correspondence, which had been taken at the battle of Vittoria, and which was deciphered with infinite patience by Mrs. Napier.

In the spring of 1828 the first volume of his celebrated "History" was published, and Napier found himself at a bound placed high among historical writers. The proofs were sent to Marshal Soult, who had arranged that Count Dumas should make a French translation. Although the book was well received, John Murray, the publisher, lost money by it, and would not undertake the publication of the second volume on the same terms. Napier determined to publish the remainder of the work on his own account. The second volume appeared in 1829, when he had a very large subscription list. The third volume was issued in 1831. Early in 1834 the fourth volume was published, and the description of the battle of Albuera and the sieges of Badajos and Ciudad Rodrigo elicited unqualified admiration. Towards the end of 1836 Napier was introduced to the King of Oude's minister, then in London, who told him that his master had desired him to translate six works into Persian for him, and that Napier's "History" was one. In the spring of 1840 Napier completed his "History" by the publication of the sixth volume. The French translation by Count Mathieu Dumas was completed shortly after, and translations appeared in Spanish, Italian, and German; and the work steadily grew in popularity. It has become a standard military history for students of war for all time. It is commended to the general reader no less by its impartial admiration for the heroes on both sides

than by the spontaneity of its style; and though it is not absolutely free from error, its general accuracy has been firmly established by the result of the serious controversies which its publication occasioned.

Napier was promoted Colonel in the Army on 22nd July, 1830. In April, 1831, he declined, on account of his ill-health, his large family, and his small means, an offer of a seat in Parliament from Sir Francis Burdett. Other offers came in succeeding years from Bath, Devizes, Birmingham, Glasgow, Nottingham, Westminster, Oldham, and Kendal, but Napier declined them all. Nevertheless, he took great interest in politics. He was extremely democratic in his views, and spoke with great effect at public meetings; and though he was often hurried by the torrent of his indignation and of his sympathy for suffering into rash utterance, he always spoke what he believed to be true. Owing to the wide influence exerted by his speeches, the younger and more determined reformers thought in 1831 that he was well fitted to assume the leadership of a movement to establish a national guard, whereby to secure the success of the political changes then advocated by the radicals, and to save the country from the dangers of insurrection. Burdett was the president of the movement, and both Erskine Perry and Charles Buller wrote to Napier pressing him to undertake the military leadership. Napier refused. "A military leader in civil commotions," he said, "should be in good health and free from personal ties. I am in bad health, and I have a family of eight children."

An insatiable controversialist, Napier, in letters to the daily papers or in pamphlets, waged incessant warfare with those who dissented from his views, besides writing many critical articles on historical or military topics. In 1832 he published a pamphlet "Observations illustrating Sir John Moore's Campaign," in answer to remarks on Moore which appeared in Major Moyle Sherer's "Recollections in the Peninsula." Napier offered to insert, as an appendix to his "History," any reply Major Sherer might desire to make. The offer was declined. Napier entered the lists on every occasion against the real or supposed enemies of Sir John Moore; and when a biography, written by Moore's brother, appeared, Napier expressed his dissatisfaction with it in a severe article published in the *Edinburgh Review* of April, 1834.

In the summer of 1838 Marshal Soult visited England as the representative of Louis-Philippe at the coronation of Queen Victoria. Napier wrote a very warm letter to the *Morning Chronicle* in defence of the Marshal, who had been attacked in the *Quarterly Review*, and he accompanied Soult on a tour to Manchester, Liverpool, Birmingham, and other places. In December Napier defended, in a letter to the *Times*, the character and intellect of Lady Hester Stanhope. Lady Hester appreciated his intervention, and a long and kindly correspondence ensued. During 1839 the Chartist agitation reached its climax in the deplorable Bull-ring riots at Birmingham. Napier regarded these proceedings with abhorrence; but in a letter to the Duke of Wellington he expressed the belief that the rioters were treated with a severity

unjustifiable in a Whig government, which, as he thought, had been ready to avail itself of the excesses of the people for its own advantage in 1832.

On 29th May, 1841, Napier was given a special grant of £150 per annum for his distinguished services. On 23rd November he was promoted Major-General, and in February, 1842, was appointed Lieutenant-Governor of Guernsey and Major-General commanding the troops in Guernsey and Alderney. He landed at Guernsey on 6th April, and threw himself into his new duties heart and soul; but he found much to discourage him. The defences were wretched, the Militia wanted complete re-organisation, and the administration of justice was scandalous. In the five years of his government, despite local obstruction, he devised a scheme of defence which was generally accepted by a special committee from London of artillery and engineer officers, and was partially executed. He organised and re-armed the Militia. He powerfully influenced the States of the island to adopt a new constitution, by which feuds between the country and town parties, which had lasted eighty years and impeded improvement, were set at rest. Finally, he procured the appointment of a Royal Commission of inquiry into the civil and criminal laws of the island, whose recommendations tended to remove the evils in the administration of justice.

At Guernsey he devoted his spare time to writing a history of the "Conquest of Scinde," the achievement in which his brother Charles had recently been engaged. On the return of Lord Ellenborough from India he wrote, offering to publish the political part of the history first, and after some correspondence which established a life-long friendship between him and Ellenborough, this was done. In November, 1844, the first part was published, and was read by the public with avidity; but, as with the "History of the Peninsular War," it involved Napier in endless controversy. There was this difference, however: the "History of the Conquest of Scinde" was written with a purpose. It was not only the history of Sind, but the defence of a brother who had been cruelly misrepresented. The descriptions of the battles are not surpassed by any in the Peninsular war, but the calmness and impartiality of the historian are too often wanting. The publication of the second part of the "Conquest of Scinde" in 1846 drew upon him further attacks, and the strength of his language in reply often exceeded conventional usage.

At the end of 1847 Napier resigned his appointment as Lieutenant-Governor of Guernsey. On the 5th July, 1848, he was given the Colonelcy of the 27th (Inniskillings), and on the 29th April was promoted to be a K.C.B. In the same year Napier wrote some "Notes on the State of Europe." Towards the end of 1848 the Liverpool Financial Reform Association published some tracts attacking the system by which the soldiers of the Army were clothed through the medium of the colonels of regiments. The association sent its tracts to Napier, himself a clothing colonel, upon which he wrote a series of six vindicatory letters to the *Times* newspaper, dating 29th December, 1848, to 1st February, 1849. They form Appendix VII. to Bruce's "Life of General Sir William Napier."

Napier moved in 1849 with his family to Scinde House, Clapham

Park, where he spent the rest of his life. In 1850 his brother Charles, then Commander-in-Chief in India, resigned his command because he had been censured by Lord Dalhousie. He arrived in England in March, 1851. Napier was indignant, and, after Sir Charles Napier's death, defended him in a pamphlet.

In 1851 Napier completed and published the "History of the Administration of Scinde." This graphic narrative, recording the gradual introduction of good government into the country, contains some masterly accounts of the hill campaigns. In 1856 Carlyle read it, and wrote to Napier :—"There is a great talent in this book, apart from its subject. The narrative moves on with strong, weighty step, like a marching phalanx, with the gleam of clear steel in them."

When the Birkenhead transport went down off Simon's Bay, Cape of Good Hope, Napier, impressed with the heroism of the officers, and seeing no step taken to reward the survivors, wrote letters to every Member of Parliament he knew in both Houses. The result was that Henry Drummond brought the matter before the House of Commons, and the two surviving officers were promoted and all the survivors received pecuniary compensation for their losses.

Napier was much affected by the death of the Duke of Wellington in September, 1852. He was one of the general officers selected to carry bannerols at the funeral. He watched at the death-bed of his brother Charles in August, 1853, and, as a special compliment, was selected to succeed him in the Colonelcy of the 22nd Regiment. He had been promoted Lieut.-General on 11th November, 1851. On 13th October, 1853, followed the death of his brother Henry. Napier solaced himself in his grief by preparing for the press the book which Charles had left not quite completed, viz., "Defects, Civil and Military, of the Indian Government," and by commencing the story of Charles's life, which he published in 1857. The work is that of a partisan.

During 1857 and 1858 Napier became increasingly feeble. He had long been unable to walk. In October, 1858, he had a violent paroxysm of illness, and, although he rallied, he never recovered. He was promoted General on 17th October, 1859, and died on 10th February, 1860, aged 74. He was buried at Norwood. His wife survived him only six weeks. She was a woman of great intellectual power, and assisted her husband in his literary labours. He left one son, and several daughters, the youngest of whom, Norah, married Henry Austin Bruce, afterwards Lord Aberdare, and Napier's biographer.

Napier was noble and generous by nature, resembling his brother Charles in hatred of oppression and wrong, in a chivalrous defence of the weak, and a warm and active benevolence. He was an eloquent public speaker, but sometimes formed his judgments too hastily. He had a great love of art, and was no mean artist. His statuette of Alcibiades, in virtue of which he was made an honorary member of the Royal Academy, received the warm praise of Chantrey. When at Strathfieldsaye, obtaining information from the Duke of Wellington for his "History," he copied some of the paintings very successfully, and made two very fine paintings of the

Duke's horse Blanco. The activity of his mind to the very last was extraordinary, considering the helpless state of his body. He was a soldier of great daring and genius, and no better regimental officer ever served in the British Army; but he was never given the opportunity of displaying his capabilities as a General. During his six years of warfare he had been thirty times engaged on the field of battle, and three times wounded.

To him the British officer owes much, for having recorded, in the most perfect military history yet written, the greatest series of events in our military annals. To him the private soldier owes more than to any other man; for Napier's was the first voice to advocate the right of the soldier to share individually in the honours, as he has always done in the dangers, of the battle-field, and he was at all times their friend and benefactor.

On the south side of the entrance to the north transept of St. Paul's Cathedral is a statue of him, with the simple inscription of his name and the words "Historian of the Peninsular War."

R. HOLDEN.

THE TRAINING OF MEN WITH THE COLOURS IN RELATION TO THEIR SUBSEQUENT EMPLOYMENT IN CIVIL LIFE.

By Major F. N. MAUDE, p.s.c., late R.E.
Commanding 1st Hampshire R.E. (Vols.)

Friday, May 28th, 1897.
General Sir HENRY A. SMYTH, K.C.M.G., R.A., in the Chair.

BEFORE approaching the main body of my subject, there is a point to which I wish to advert, connected with the report of the Select Committee on the Employment of Retired Sailors and Soldiers, that seems very generally to have escaped the notice of its critics and commentators.

It has almost universally been assumed that the condition of affairs ascertained by this Committee is in a manner final, *i.e.*, because in 1894 a certain result had been arrived at, the same result would follow in 1895, 1896, and so forth. Of course, this would be the case if the conditions involved had remained uniform, but fortunately this has not been so; the training of the men with the colours has been enormously improved in the special direction in which I hope to show improvement was, and still is, needed, and with every year the men are leaving the ranks far better equipped for their struggle for existence than they could be at the time to which the great body of evidence in this report alludes.

It is evident from a look at the dates, that the dates of enlistment of the bulk of the men whose condition is here inquired into must have been between 1880 and 1886, and this was just the period when our system of military training had of necessity reached its lowest ebb—we had lost the best of the old system and had not begun to evolve the possibilities of the new. If then under these circumstances, and in a period of slack trade, over 80 per cent. of our Reservists were known to have obtained employment, I fail to find any justification for the jeremiads to which we have been treated, both in the Press and in Parliament, by men whose position of responsibility ought to have restrained them from speaking or writing without verifying their references. If you look at the first provisional

report of the Committee in question dated August 3rd, 1894, the late Major-General Fielding, who was then at the head of the Recruiting Department, prepared and submitted a statement showing the number of men whom he had been able to trace, whether in employment or out of it. I remember at the moment this report appeared I took up the *Times* of the same date, and found a statement of the number of men out of work in the skilled trades in the country, that is to say, all the boiler-makers and the best class of trade unions, and it was curious to notice that the percentage out of work in the skilled trades in August, 1894, was identically the same as the number of our own Reservists who were known to be unemployed. I do not wish to push this point too far. Many men who could not be traced may have been unemployed, but on the other hand many only in casual employment would have been glad enough to return themselves unemployed if they thought that by so doing they might open the door to something better. Since this was written there appeared the other day a statement in the House, a report vouched for by Sir A. Halliburton, which showed that out of the Reserve men, that is to say, the men actually on the reserve list, only one in 238, that is about ·25 per cent., were in receipt of workhouse relief. That report, as I dare say you will remember, was arrived at by taking a census of the men in the workhouses, and poor-shelters generally, on three given dates, and it was attacked by Mr. Arnold Forster on the ground that those three given dates were the most satisfactory from the War Office point of view, and the worst for the men which could have been selected. I do not think that this was specially the case, but still we may pass it that they were in the summer, at a time when men would not naturally be in the workhouse, and so far they may be taken as the best the War Office can hope for. He himself submitted figures which he had collected from workhouses in other districts which showed a perfectly appalling number. I dare not say from memory what the number was. But this return was vitiated, because it did not appear from it how many of the men were Reservists proper, how many were ex-Reservists, or pensioners, or how many were discharged bad characters who never would get work, and would not take it if they could. The truth will probably lie somewhere between the Official Report and Mr. Arnold Forster's, with a very strong leaning towards the side of the official report.[1]

But for the shadow which the unfortunate C.D. Acts have cast on the reputation of the Army—most unjustly, in my opinion—I would venture to predict that a far better result, particularly as regards quality of employ-

[1] The report of the Local Government Board, recently published, corroborates very strikingly the official view. On the night of the 1st January, 1896, 6,900 men were registered in the various workhouses throughout the kingdom, of which one-fifth only were old soldiers. At the present moment there must be at least 400,000 men under the age of sixty who have passed through the Army in the country, viz., 80,000 Reserve, 250,000 ex-Reservists enlisted since 1871, and the remainder long-service soldiers enlisted prior to 1857. Assuming the percentage per annum of those who have sunk to vagrancy to be uniform for each year, this only gives us 35 per annum gone to the bad, or ·35 per cent. of the total. Compare also Sir A. Halliburton's return above quoted.

ment, will reward the exertions of some future inquiry, say twenty years hence.

Coming now to the *précis* in your hands, I will endeavour to justify my position.

"1. The certainty of satisfactory employment in civil life after leaving the colours should be the primary aim of all sound military organisation.

a. For the Army then attracts better recruits.

b. Better recruits return higher results for the time and trouble spent on their training."

This would seem such an obvious, common-sense conclusion, that further defence would be a mere waste of breath; nevertheless, the view is so constantly put forward that the reckless and shiftless make the best class of soldier, that a few further words in explanation will, I trust, be pardoned me.

The proof I hold to be demonstrated by the generally satisfactory condition of recruiting for the R.E. companies ever since I have had personal knowledge of the facts—*i.e.*, for about twenty-three years—and having thought over the matter from every point of view, and in particular having carefully studied the class of "sapper" individually and collectively, I cannot think that the mere difference of pay is the sole inducement to these men to come forward, for this is a very inadequate return for the extra labour involved, and, indeed, was originally calculated to be but little more than compensation for the extra wear and tear of uniform.

Moreover, life in the sappers is shorn of very many advantages which the Line and Cavalry enjoy. Split up in small detachments, they are uniformly worse lodged, and incomparably worse off as regards recreation rooms, sports, etc. Owing further to the size of the corps and the obligation of Indian service on the officers only, the same intimate bond of sympathy between men and officers cannot grow up as in a regiment, and in its absence the men are far more at the mercy of N.C.O. intrigue and tyranny than a wise recruit would consider desirable. I do not, of course, accuse our N.C.O.'s as a class; on the contrary, as a body they deserve the highest praise for their justice and impartiality. But human nature is human nature, and the danger is inevitable, for the officer whose pocket remains untouched by his men's deficiencies is always and everywhere a more unprejudiced ruler than the man whose promotion, and consequently pay, is directly affected by the acts of those for whom he is responsible.

If pay were the sole or chief inducement then there should have been a constant pressure of recruits always available for the R.E. troops, whose additional 4d. a day in the period of which I am speaking was calculated as a fair set-off against the sappers' working pay, and, in point of fact, actually was so; but though in those days we took men without trades or education—and our standard was the lowest in the Army—there were times when we obtained practically no recruits at all, and this in spite of the fact that life in the regiment itself was the most contented

and happy I have ever known anywhere, and men in the cavalry who knew our system were clamouring to be allowed to exchange to us.

Neither was it the good appointments, whilst still in the corps itself, which could explain the attraction; these were substantially not more numerous than in the rest of the Service, whilst the competition was necessarily far more severe, and owing to the causes above indicated existing between officers and men the individual was not nearly so certain of attaining them.

I am driven thus to the conclusion that ultimately the cause of our success was the uniformly good results which had accrued to each individual sapper as a consequence of his service, which had led him to speak well of it and induce his friends and relations to send their sons to join us. I am confirmed in that opinion by evidence since accumulated from our regimental paper, *The Sapper*. This takes in correspondence from all parts of the world from retired sappers, men who have gone to the Colonies, or, in one way and another, done well for themselves; and nothing could exceed the strong regimental feeling and loyalty to the corps these letters show. It is astonishing that such loyalty could exist, split up as we are all over the world in detachments. I am convinced, too, that, had circumstances permitted the formation of the regimental tie as in the Line regiments, our successes would have been greater still; for I have personally had many most admirable West Riding recruits offered me by their parents, if only I could guarantee that they might serve in my company—of course that was impossible, and the men were lost to us.

The above will also explain the relative difficulty of obtaining recruits for the mounted troops, telegraph, bridging, etc., to which I referred above; the corps were of more recent formation, and in point of fact our drivers did not find so good a market for their labour as the sappers.

That better recruits return higher results for the time spent on their training goes without saying: the proof I find in the extraordinary progress made by our recruits at Chatham.

I have had a good deal of experience and opportunities of judging foreign troops—French, German, and others,—and have seen the best of the German Army recruits, and I can assure you that they cannot compare with the recruits we get at Chatham in readiness for picking up their drill. In the ordinary period, under three months, our recruits, when they are dismissed, in point of sheer military smartness on parade, and absolute steadiness, would be difficult to beat anywhere. Of course, the longer the troops remain under discipline the better they get. That is always the case within certain limits; but you may go to Berlin or St. Petersburg, or anywhere, and you will not find better results secured in the same time.

"No mere prejudice in the minds of employers can hold its ground long in these days of intense competition. If the Army turns out good men, self-interest will ensure their employment." But it is

important to see how this prejudice against soldiers arose, and the evidence of the Committee is very instructive on this point, and goes far to elucidate my point in paragraph 3. "If progress in this direction has hitherto been slow, this is because organic changes work out their full consequences slowly, and neither the nation nor the Army as yet understand the whole possibilities of the existing short-service system, or realise the results which must ultimately inevitably flow from its complete evolution."

It is evident that many employers actually approached the problem with good-will, but they were often too ignorant of military matters generally to be unprejudiced. One witness, for instance, who has nevertheless done splendid service to our cause, appears to have been under the impression that the Reserve was called out for a month's training annually like the Militia—a mistake which must have prejudiced them fatally in the particular employment he was able to offer: this was railway employment; for it is obvious that if a man was liable to be taken away when the spring traffic was just beginning, it would be fatal to his prospects. Yet although the employer evidently wished to help in the cause, it never occurred to him to find out the real truth; he took it that the Reserve man was simply a Militia man called out every year.

Very generally all witnesses agreed that the Reserve man was essentially lacking in the power of concentrated effort during many hours of consecutive work; many also considered that the habit of mechanical obedience had impaired his individuality.

Now the first of these errors is due to ignorance pure and simple; the second has a basis of fact and shows the tenacity of popular tradition; it is the chief point that we have now to fight, and our weapon is, and can only be, the Press. Originally, when the short-service system came into being, it actually was to a great extent well founded, for nothing else could result under the long-service principle when once the conditions under which it had originated—viz., chronic warfare—had changed. This does not imply an indictment of our ancestors' policy, far from it; in times of chronic warfare, everything must give place to the needs of the moment, and for that moment the then existing system offered the only possible solution; if such times supervene again, we shall perforce revert to the custom of our forefathers, for no other solution is practicable or even conceivable. When men have to be broken in to military discipline, and the time is short, between the moment of enlistment and their first appearance in the field, absolute rigid obedience is all that can be taught, and there is no fear of overdoing it, for the requisite elasticity of individuality is restored by the first shrill whistle of the bullets; but if year after year elapses and this sharp corrective is never encountered, the result is the reverse of what we aim at: instead of merely controlling individual initiative, the grandest of all fighting qualities the race possesses, we end by destroying it utterly, and the fighting man becomes an automatic machine—exactly what we do not desire to make him. This result is absolutely inevitable, and history furnishes abundant demonstration of the fact. I need only refer to the

case of every long-service peace-trained Army—the Prussians, in 1806, are the most conspicuous and instructive example—in confirmation.

The great central fact, the keystone of the whole short-service system and all contemporary military training is to develop a man's individuality and enable him in the last resort when the bullets have rent the chain of responsibility, to stand up and act on his own initiative. It is our object now to make men, not machines; and the military engine in all countries finds its vindication and justifies its existence in this very point, that whereas all modern commercial undertakings lead inevitably to specialisation—hence to the destruction of individuality—the object of the military training is to counteract this tendency and to give us strong self-reliant men, not mere automata.

I cannot too strongly insist on this point. In the position I recently held here as Editor of this Institution it was my daily duty to wade through the columns of the Press, and I conscientiously did it, and have continued to do so; yet, practically speaking, nowhere have I been able to note the recognition of this one cardinal point of our modern system; everything else is touched upon in comment, often exceedingly ably, but of this central fact of our new methods nowhere can I discern a spark of appreciation; yet it is the one essential point of our whole structure, the one thing that transforms military training to a boon—not a tax upon the species—that during the years the men come under our influence we are striving to make them *men*, strong, self-reliant citizens, not mere cog-wheels in the national train of machinery.

That this recognition has not come to us need surprise nobody; the Army itself, the very men engaged in this national scheme of education, are only beginning to realise it; and progress has been still further retarded by the grudging concession of responsibility to those on whose shoulders the chief weight must always depend, viz., the company officers.

Perhaps "grudging" is too strong a word to use, as it implies censure of the then existing authorities; the simple truth was that our regimental officers under the old system had never enjoyed the opportunity of grasping all that is comprised in their new position as educators of the young soldier; they had hitherto been only leaders of trained men, the men themselves having attended to their education as they always have done in long-service Armies. If the period of service was one of incessant war, the system answered well enough, for the old soldiers of fifteen years' standing not only had a direct interest in seeing that the recruits did not fail them in the field, but necessarily also knew more about the details of their trade than the subalterns of perhaps only three to five years' service, many too of very youthful age.

Where the same conditions, that is to say, permanent peace, affected the whole Army simultaneously, history shows that a single generation sufficed to destroy almost all that years of warfare had built up; but since uniformity of condition has never affected us, we have escaped the wholesale destruction which has overtaken other Armies, and a portion of

our regiments have always retained a fraction of warlike tradition and of that decentralisation that is its inseparable associate.

It is from these regiments that the impulse which has carried us so far in so short a time originated, and the succession of small expeditions in which we have since been engaged has done the rest. I do not by any means maintain that we are approaching finality, very far from it indeed; but I do consider that the progress we have made during the past twenty years is relatively far greater than can be shown by any other Army (except the Germans since 1870) during any similar period of time, and that, too, under the exceptionally difficult condition that we have had no direct personal experience of modern European war, but have had to assimilate at second hand the experiences of others, thrashing out the wheat from the chaff, the true from the false, with only the light of common sense to guide us.

The mistakes we have made were inevitable consequences of the misleading information available, but week by week we are shaking them off, and healthy progress is everywhere becoming manifest.

The keystone of our present system is the care devoted to the individual training of the soldier, which, in all its branches—drill, gymnastics, musketry, signalling, etc.—is sufficiently varied for his complete physical and mental development. All these can be medically shown to have a direct effect in strengthening his character and conferring on him habits of self-control and concentration; and it is these habits, the power of putting one's whole soul into the performance of everyday duties, that in these days lead most surely to success in civil life.

Let me here call your attention to a very remarkable book by Dr. Nordau, entitled "Entartung"—Degeneration,—in which he deals with what is undoubtedly the most serious malady of the period, viz., the increase of nervous disorders, varying in intensity from the mildest manifestations of hysteria to the most violent outbreaks of homicidal mania, and due essentially to the tax laid on the brain and nerves by existing conditions of civilisation to which the great number of organisations have not had time to adapt themselves. Curiously, Nordau shows himself in his other works a firm opponent of military service, but in this he indicates most clearly the incomparable value of a well-regulated drill-training as the best of all means to enable a failing mind to regain or maintain control of the bodily actions, *i.e.*, to preserve a man from insanity; and, read without prejudice, his work constitutes the most powerful plea and justification of universal military service which has ever yet been put forward.

To those who trace design in every incident of our daily existence I would suggest this subject for contemplation—Advance in knowledge suddenly brings an enormously increased strain on the nervous organisation of human beings; simultaneously, but from what appears to be an entirely different direction, conditions arise which compel the youth of whole nations to submit themselves to precisely that form of mental and physical training which will best fit them to resist the new influences to

which they are exposed, and almost in precise relation to the degree of risk which they run. Germany was far the least ready to take the strain of nineteenth-century civilisation when it came, and circumstances have compelled her youth to submit to far the most severe training: England was the best prepared, and the necessity for training is therefore the least. Other thoughts will suggest themselves, doubtless, to my listeners, but I leave each to work them out his own way.

I will only add that to a psychological expert like Nordau, Socialism, Anarchy, Ibsenism, and all similar delusions are forms of intellectual aberration requiring medical treatment to check their ultimate consequences on posterity, and the form of treatment which best meets these requirements is based on identically the same principles as those on which the psychological justification of military training stands; and since the need in foreign countries—as shown by the gaol statistics and prevalence of many forms of insanity—is markedly greater than in this country, this explains the increased importance which is nowadays attached, in other nations, to the psychology of the soldier's training—a word which when used in a recent lecture in this theatre appears to have filled the minds of many of our military critics with alarm; but, gentlemen, if you had seen some of the specimens of the proletariat the military net sweeps up in its meshes, and had to deal with them as our French and German comrades have, you would understand the importance they attach to a scientific study of their profession, which in time of peace is rather the "making of the soldier," not his employment in the field.

"In the struggle for existence mere intellectual ability and technical skill, unless allied with strength of character, go for very little—more often than not they are the veriest pitfalls, delivering men over tied and bound to Socialist agitations." This is essentially the conclusion to which Mr. Benjamin Kidd arrives in his book "Social Evolution," in which he works out this point. I know he has been rather attacked by many other friends of Mr. Charles Pearson, who wrote the first book on the subject; but I cannot help thinking that Benjamin Kidd is here in the right. It is practically the history of our own dominion over all the foreign and native races condensed into a sentence. Intellectually we are not superior to the majority of them; the average among them will pass better examinations and beat us on paper almost on whatever point you take them. The essential point of our superiority is "character," that extraordinary gift which enables one Englishman, who very often does not read very much, frequently does not study very much, but who can nevertheless get up and rule and command. As I take it, judging by experience, no other race has ever succeeded in doing so much. If you go into the matter closely you will find it is character, and not intellect, which brings about this result; still less is it mere technical skill. In the same way the principle runs through the whole scale of existence at home. If you go into the workshops and look at the men at work, enquire about them, and live amongst them, you will find it is not exceptional skill, as a rule, which brings men to the

front. I speak with some knowledge of the life of our great manufacturing towns, and particularly with regard to commercial life in the West Riding, and am firmly convinced that good-will and a quick, active intelligence will enable a man to overtake rapidly the leeway in his technical skill that he may have made during his service, and the habits of obedience and through obedience of command which he has had, at any rate, the opportunity of acquiring, will open out to him the road to far higher and more lucrative employment than can ever be attained by the good craftsman who has no trained habit of command. It is to this that I attribute the uniform success of our sappers in civil life, for they too make leeway in their trades in the Service, and many of them had no particularly high order of skill to show when they first joined.

Under compulsory service the problem is far harder, for there even the skilled workman, the man possessing hereditary gifts of eye, hand, and taste is taken, and his delicacy of touch destroyed by manual labour of the roughest kind; but these men we never get at all, and for the remainder, as far as skill goes, it is immaterial whether they have been away three years or seven from their trade.

In foreign countries the men leave their trades for three years only (two years now in most cases), and they keep up a much closer touch with their friends in the towns and stations than our men could possibly do who have to serve in the Colonies and come back after five or six years' absence. This break in a man's life of seven or eight years obviously hits him much harder than the two or three years Continental service; and what we must look for, therefore, as much as possible is to find a new field where "skill" is not so highly rated as "character" gained from the disciplinary training of the Army, and to that point I now come.

Colonisation by soldiers has been tried in all ages, and with varying degrees of success; our experiments in this direction have been somewhat uniformly unsatisfactory, the only instance to the contrary with which I am acquainted being the success which attended the settlement of the disbanded German Legion in South Africa.

This need not dishearten us, for, under the conditions, failure was inevitable. The old twenty years' man was too old a dog to learn new tricks, and his training rendered him more than usually unable to confront new risks and adopt new expedients. But all this has been changed now; we have men in the prime of life, whose minds have been opened and their intelligence quickened in a manner quite impossible in the old days.

The question is whether by development along the present lines we might not do more to excite their interest in the possibilities these new homes hold out to them and fit them better for the trials they will there encounter, without impairing in any way their military efficiency?

The first point is simple enough, and is the field for voluntary effort in the men's spare time. Most, if not all, regiments have now a branch society for the employment of their Reserve men; and I suggest that these societies should organise lectures in the recreation rooms with

lime-light slides to educate the men in the prospects the Colonies hold out to them.

It is, of course, essentially frontier or pioneering colonisation, and not mere transhipment to large colonial towns, that I have in view; and I cannot help thinking that if the National Society for Reserve Soldiers were to approach the Colonial Agents, pointing out how, during his military training, the soldier has been specially instructed in the rough frontier engineering, road-making, hutting, clearing, water supply, bridging, etc., land might be obtained for them on very favourable conditions, either with or without any contract on the part of the settler to join the nearest corps of Militia or Volunteers in his district.

I would further suggest for discussion whether each regiment might not permanently identify itself with some colonial township or district, so that the men going out would find themselves amongst friends, and the old regimental tie be thus made more enduring. It is still very strong in spite of short service, as a reference to the regimental papers and magazines will show, and if localised in the manner suggested would prove of enormous value in time of great emergency.

Officers on the retired list travel so frequently to the Colonies in search of change and sport, and for the most part retain so strong an affection for the old regiment, that I think it would not be hard to find men in every corps who would willingly put in a visit now and again to these settlements and maintain the connection with the mother-country.

As regards modifications in the training of the men, the better to fit them for this new field of activity, I advocate only development along existing lines, and only this because further progress in this direction is called for both in the interest of fighting efficiency and of all forms of subsequent employment.

The one essential point of adverse criticisms in the evidence of all the witnesses before the Committee on which all were in agreement was this: . . . the ex-soldier, on taking up employment, was inferior to the civilian in his power of sustained effort. If he survived the first few months he was all right, and could earn his pay with the best of them.

It is true that the witnesses spoke of men trained under a system materially inferior in many points to the one at present in force; but the evil is still in existence, and I fear must always continue, until by the equalisation of battalions at home and abroad it becomes possible to secure some uniformity of practice, and to diminish the local pressure in our home training schools.

When I first drafted the scheme of this paper, in common with many others I believed that this year's Estimates would show a provision for the removal of this most serious ulcer on our military existence; but, like others, I was disappointed, and recent events in the Transvaal seem to render any prospect of relief more remote than ever.

The trouble really is this, that with the present pressure of work there is no time for the men to get to know the officers, or *vice versâ*; hence no tie of common interest can originate between the two which can render hard work for the credit of the regiment a pleasure rather than

a pain. In spite of this the men do respond in a most marvellous way. I noticed last year in the manœuvres, when the marching was unusually hard, the weather exceptionally bad, and the men very young, how excellent their bearing was—more could not reasonably be expected of them under the existing system. There was never a grumble, but the regiments swung into camp as smoothly as if they had been at it twenty years; the trained eye can never be deceived in judging the discipline and spirit of the men from their marching swing.

Still, so much has to be learnt in so short a time, that it is all cram and no digestion; so much work is purely instructional, and the strain of instructional work is so severe, that the parades cannot be continued with advantage for more than, say, an hour at a time; but what we really require to make the instruction imparted become part and parcel of a man's being, is what I venture, for want of a better term, to call "digestive parades"—periods of long-continued semi-concentration, on the march, in manœuvres, in the execution of works, during which a man, without effort, gradually assimilates the knowledge imparted to him and makes it part of himself. Of such, for instance, are our long spells of six to eight hours digging in the trenches: a man learns no more about the section of an approach in eight hours than he might easily acquire in five minutes from a black-board, but he does learn the habit of remorselessly sticking to his job till he is through with it; and that habit once acquired is the best investment of his time and labour on which he can ever embark; it is the one thing he needs to assure success in civil life, as these witnesses tell us—and this is the true secret of our success in securing employment for our Reserve men in the R.E.

But how are we to find time for such exercises with the Line recruits? We sappers have two years clear for such purposes, the Line barely six months.

Until the equalisation of the battalions is carried out, the only thing possible to my mind seems to be to drop the conception of recruit and trained soldier altogether, slow up the rate of progress on joining, and treat our soldiers as students, always learning something new, till they pass to the Reserve; at the same time extending by several weeks yearly the period of company training. Take one further step in decentralisation, and realise, as the Germans have already done, that the company is the unit. A captain commands and is responsible for the fighting efficiency of his company, and the colonel commands and is responsible for the efficiency of eight captains—not of 800 men. This is the essential feature of our Artillery and Engineer services, and, judged by the standard exacted from time to time by the inspecting officers, it has given us batteries and field companies second to none in the civilised world. What the inspecting officers demanded they obtained, and if at times they preferred fat horses and spit and polish to more practical indications of efficiency, it was the inspectors who were to blame, not the battery or company officers.

If here and there we could not boast of the same uniformity of excellence the Germans present, the cause lay, and still lies, in the fact

that in both services above named, officers and men are borne on a different roster for foreign service.

But this defect does not exist to the same extent in the Line, and I am confident, if the same system of decentralisation was thoroughly incorporated in the spirit of the Army, the results would be far more brilliant than any we have ever witnessed in this or any other country.

Meanwhile, as this spirit is growing—and it takes time to mature, for it is the hardest lesson an active and energetic man can set himself to learn, viz., the art of conceding responsibility to subordinates—I would further suggest that the training of the infantry should be gradually levelled up to the training of our field companies. There should be more pick and spade work, more rough carpentry in hutting and bridging, more adaptation to the rough life of our ordinary frontier expeditions; in time to come, except as telegraph and ballooning specialists, you might safely abolish the Engineers altogether, and, believe me, your fighting efficiency would not be one whit impaired, your immediate comfort enormously increased, and the future of your men secured.

Our men shoot as straight as yours in the field, and our death-roll proves our disciplined courage beyond possible cavil; you will have to do, as you always have had to do, the same work as ours on service, for the simple reason that there are not Engineers enough, and never have been, to suffice for the needs. Would it not be better to train yourselves in peace for the emergency, seeing that, even if the need does not arise, when each man's time of service expires he is a man fit to stand on his own feet against all the competition of the labour market? For that, I contend, he always will be, if organisation in peace, as indicated above, gives him the necessary opportunity. What more perfect implement for colonisation can be suggested than our present field companies? But each of the little regimental communities I suggest would, in course of time, become small independent replicas of the original regiment, and against their organised and trained capacity for labour outside competition would be in vain.

Such an organisation would save the individual from the risk of falling into the hands of the crimps and the usual people who flock in seaport towns; and it would give him friends to look after him till he knows enough about the country to go ahead independently.

It may be said that my plan would deplete the Reserve; I contend that it would decentralise it—an enormous difference in point of fact.

At present, on the outbreak of any great war, our Reserves are at home, precisely where they will not be needed for months, and wanting on our exposed frontiers, where the pinch may be felt in the first days, and whither they cannot be despatched until the question of command of the sea has been thoroughly settled. I need hardly enlarge on the advantage it would be to us at the present moment to have 20,000 trained seven-year men in Rhodesia and the Cape; or, say, 50,000 in Canada.

Consider also what it will mean sending troops to run the gauntlet of all the French torpedo-boats down the Mediterranean, or even down the Channel. There would be a serious risk, and I cannot help thinking

that if we had those men in South Africa or Canada when the need arose they would be much available than they are at home. However, if the objection to depleting the Reserve is allowed to hold weight, there is a very simple way out of it. The Reserve man wishing to go to the Colonies, and for whom a berth has been found by the agencies indicated, need only find a substitute from the ex-Reserve to draw his pay on quarter day—he must of course be medically fit for service, but under the age of thirty-five there are many scores who will fulfil that condition.

Finally, and in any case, we can encourage the emigration of the man whose reserve liability has expired, and indeed it is from them I should expect the best support, for they have had time to realise what competition in our overcrowded labour market really means, and would only be too glad for a fresh opening in a new country still in connection with the old regiment. They would still be between thirty and thirty-five years of age, and have many years of hard work still in them; and I cannot imagine a policy better fitted for the development of our vast colonial estates than the encouragement of these men, in whom, and in whose families, the spirit of loyalty to the flag is most deeply engrained, to undertake the duties of wardens of our marches, more especially, if by such a training as I have indicated above, they had been previously prepared for their due performance.

General Sir EDWARD BULWER, K.C.B.:—I am not going to say many words beyond those of expressing how pleased I was myself personally, and I am sure all here were, to hear this lecture. In the first place, as far as my own opinion goes, the lecturer has very clearly and succinctly proved the advantages of short service over long service. I remember the time when short service was started. Those who advocated it—those, I mean, who prominently advocated it—put forward the very great advantages which would result from short service, and the moment it was started it was generally expected those advantages would follow at once. People were always seeking for them and, as it were, digging their roots up to see if they were growing. As the lecturer has very cleverly shown, no great organic changes can work out their full consequence except slowly. Now the short service is beginning to work out its full consequence, as the lecturer very clearly puts it, and I am very glad to have the opportunity here of having heard the forcible manner in which he has shown the results which are now taking place. I do not know, but I think this is the first time the lecturer has lectured here, but I hope it will not be the last, because he has given us a very interesting lecture. There was one point in the lecture which I should like to make a remark upon. He mentioned that in 1882 he was at Aldershot, when the Engineer troops were there, and he referred to the difficulty of finding recruits for those troops. If I remember rightly, the troops had not been long formed then.

Major MAUDE:—They were formed in 1859, but somehow they had never come to notice. We had no need for recruits before. That is how it was.

General Sir EDWARD BULWER:—One of the reasons why there was a dearth of recruits was this: the whole recruiting of the country had to be checked that year. The Reserves were called up, but the establishments were not increased to meet the Reserves. Therefore, there was scarcely any room for recruits at one time, and recruiting had to be checked everywhere. Although there might have been a difficulty in finding men for the troops of the Royal Engineers, and that consequently they got only a few, that was no doubt partly the cause of the difficulty. I am not going to enter into any discussion as to the employment of Reserve men in the Colonies: I think that is a subject well worth considering; but

I am told, in corroboration of what the lecturer says, that now many Reserve men, instead of coming to the society to find employment, are beginning to find employment for themselves. The employers of labour, in fact, are beginning to value Reserve men—those men, at all events, who leave the colours as good men. They have learnt what the lecturer says—individuality and character; and thus they have made themselves useful members of society in the employment which they seek. I beg merely to thank the lecturer for his paper.

Major W. S. BURRELL, The Queen's (Royal West Surrey Regiment):—Mr. Chairman, in commenting on Major Maude's very interesting lecture, I must congratulate him on having attacked what really is an extraordinarily difficult problem. I think we are only just beginning to realise how hard the problem of the training of the soldier with a view to his future life is, and how much mixed up it is with an enormous number of other questions. If the Adjutant-General for Recruiting were here he would admit that it interests him just as much as it interests the company officer, and as it interests anybody whether he be a philanthropist or a soldier. I do not propose to trouble you with more than three or four remarks. My first is to say how I agree with the lecturer on the subject of the improvement in the modern training of the soldier. I will continue by quarrelling with the lecturer for throwing a certain amount of cold water on the efforts which company officers have made. My experience with company officers (I am a company officer myself, and, therefore, rather interested), my own experience of them is, that they receive the new system of individual training with open arms. The company officer is a fairly well educated man and he has been delighted to have an opportunity of training his men on modern lines. Nothing used to bore me so much in the old days as to have my sleeve held by the right-hand man who told me where to go. Now I am rather interested and distinctly pleased with myself for being able to tell my men where to go. And I would say that the new system is working in a most marvellous way. I am in touch with my men, more perhaps than the lecturer thinks I can be in the short time before they leave for India, or leave India for the Reserve. We get to know our men absolutely under this admirable modern system of company training. But with this modern training comes the question of how long you want to keep the soldiers. As a company officer always training men, I maintain that I will get the very best out of and into a man in four years, and then you may take him away from me—I have done with him. Give him to me for four years, and after that he may say, "I am an unprofitable servant," and he is quite right. I do not want him beyond four years. I will go on to deal with two or three points of which the public are not sufficiently aware. First of all, the matter of how soldiers are received when they leave the colours by employers. The first question is that of character. As one of the audience here is aware, I have had a little to do with getting places for old soldiers, and I venture to state that the character which is given to the old soldier by his commanding officer is a purely departmental character: "His conduct and, etc., while with the colours have been according to the records," and so on. What has that to do with the employer of labour? It does not help him in the least. I know of one employer of labour (who has given employment to hundreds of old soldiers) who finally gave the order to his subordinates, "No more old soldiers," his reasons being that he found that the good and bad alike were described as "very good" on their record of service. Old soldiers lose many opportunities from that. The next point I should like to touch upon is, that in civil life the discipline is greater than soldiers generally think. I only mention that because the lecturer did not touch upon it. The discipline of the great railway companies is one of the most stringent things in the world. I quote a question asked of a candidate for the position of ticket collector at one of our great railways: "Have you ever been drunk?" "Yes, sir, when I was sixteen." "Thank you, we cannot give you the situation." One case of drunkenness will break a railway guard, one scowl from a workman to an

overseer would get him the sack. We do not realise that when we give men characters ; and, in fact, the discipline of civil life by large corporations is much more severe than that of the British Army. The last point I would touch on, if I may be allowed to do so, is the habit of work in the Army. With regard to that, as the lecturer has pointed out, we are improving fast ; but up till now the habit of work has been nil, but it has been a "spurt" and then a "loaf," a relief of Lucknow, and then a break out. The habit of steady work, of allowing one's self to be bored with steady digging, or working behind a counter hour after hour and day after day, is almost unknown in the Army. I know that I am not used to it myself. If I were used to it, I think I should be better suited for civil employment. I beg to congratulate the lecturer upon his paper.

Major MAUDE:—With reference to Major Burrell's remarks,—I fear he has misunderstood me in several points. I cordially agree that the majority of the present company officers fully appreciate the advantages company training gives them, but very few, if any, of them joined before 1871. The captains of 1880-4, the period of which I was speaking, had largely joined under long service conditions, and with the best will in the world had not as a body the experience necessary to utilise their opportunities. As regards "digging," I fully admitted that a man could learn all he wants to know of the trace and profile of works in a very short time ; but my point was that it was only by actual manual toil, whether with spade or other implement is immaterial, that he could acquire that habit of steady work and the physical condition necessary for it, which Major Burrell himself admits to be absolutely indispensable. As to the discipline of our great commercial works, I cordially agree with him. What between foremen, gangers, trades union spies, etc., I consider the lot of the free British working man considerably less desirable than that of any black slave on an old-time Virginian plantation or of any Russian serf in pre-Crimean days ; I need hardly add infinitely less pleasant than that of a decently behaved British soldier at any period. In conclusion, I have to thank General Sir Edward Buller for his kind words, and to assure him how much I appreciate such cordial praise from an officer of such ample experience in this particular field.

The CHAIRMAN (General Sir H. A. Smythe, K.C.M.G.):—I think that there has been so much consensus of opinion by us here with the lecturer that I have very little to remark. I am sorry that, owing to the competition of so many events interesting both to naval and military officers, our numbers at this meeting are low. Of course, the Military Tournament has taken a great number away who would otherwise have been here, but, even with many more members, I do not think we should have heard many views divergent from those of the lecturer. We are largely of the same opinion that he is, and we seem to have all made approach to his favourable forecast of the prospects of the short-service system. I only think it necessary that we should remind ourselves that the true purpose of the soldier, the purpose of his creation, is not a comfortable latter life after he has passed through the Service. The purpose for which he is created, so far as we know it, is that he should fight according to his instructions—with will and with skill—and we must not allow our anxiety for his future condition to take away from the main purpose of his admission into the Service. In the words of the lecture I find nothing opposed to this view, but in the phrasing of this *précis* of the lecture there is an expression which might mislead some as to our professed purpose, and lead others away in a wrong direction. It says:—"The certainty of satisfactory employment in civil life after leaving the colours should be the primary aim of all sound military organisation." Indirectly that may be right, but it is distinctly indirect in regard to the main matter of providing us with soldiers for our own use, for fighting ; and in providing us only with a promising class of men to make soldiers out of in the future. The military training of our men, happily, goes further than it ever has before in the direction of fitting men as well for civil as for military life;

and, so far as that training for warlike purpose works in with the preparation for civil life, it is so much to the good ; where anything else is required, I am one of those who think that that something else ought to come from the administrative departments, and from the Government which is above them, rather than from the executive officers of the Active Army, who have enough to do to carry out their proper office. But we rejoice in the lecture as far as it has taken us. I hope that I have your consent to give a hearty vote of thanks to the lecturer.

VON LÖBELL'S ANNUAL REPORTS ON THE CHANGES AND PROGRESS IN MILITARY MATTERS DURING 1896.[1]

Précis by Colonel H. J. T. HILDYARD, Commandant Staff College.

THE present number of the valuable military annual that still bears the name of the distinguished officer who originated, started, and for many years superintended its publication, is the twenty-third. Notwithstanding the improvements introduced from year to year in form and matter, while under the direction of Colonel von Löbell, his successor has still found room for the introduction of new matter that cannot fail to prove of interest to every military reader.

In his preface, Lieutenant-General von Pelet-Narbonne refers briefly to the changes that have been made by him. In the first part, the Budget, especially the Army Budget of each State, the forces of which are dealt with, is gone into more closely, and the establishments of tactical units in peace and war are given, so far as they are known.

In the second part, a valuable addition is made to the chapter hitherto reserved for the tactics of infantry, by including in it the consideration of the action of the several arms in combination.

H. H.

REPORTS ON THE ARMED FORCES OF INDIVIDUAL STATES.

GERMANY.

Peace strength.—

Infantry battalions :—

	Officers.	Men.
Lower establishment	18	596
Higher ,,	22	660

Cavalry squadrons :—

	Officers.	Men.	Horses.
Lower establishment	4	133	133
Middle ,,	4	138	137
Higher ,,	4	146	140

[1] The delay in printing Colonel Hildyard's valuable *Précis* has arisen from the decision arrived at by the Council in July, that the three competing Essays for the Gold Medal, which were "honourably mentioned," should be printed in the JOURNAL.—ED.

Field Artillery—field batteries:—

	Officers.	Men.	Horses.	Horsed Guns.
Lower establishment	4	108	44	4
Middle ,, -	4	119	60	6
Higher ,, -	4	127	75	6 and 2 horsed ammunition wagons.

Field Artillery—horse batteries:—

	Officers.	Men.	Horses.	Horsed Guns.
Lower establishment	4	91	76	4
Middle ,, -	4	112	105	6
Higher ,, -	4	120	120	6 and 2 horsed ammunition wagons.

Particulars regarding the strength in war are not published.

Organisation.—The law of the 3rd August, 1893, by which the time with the colours for the infantry was fixed at two years until the 31st March, 1899, necessitated the increase of establishments, the fixing of an average present strength of privates, and the creation of fourth battalions to infantry regiments. The first two measures had for their object to bring the units up to the strength necessary for their efficient training and immediate employment, and also to provide for the uniform training of the recruits. In peace, the fourth battalions were to relieve the first three battalions of duties that would interfere with this. In the event of mobilisation they were to facilitate the creation of new and Reserve formations.

The establishment of the fourth battalions was fixed for this purpose at only 193 non-commissioned officers and men. The raising of the establishments and the fixing of the average strength have been found beneficial as regards the peace training of the infantry. But in the fourth battalions, though they have been of value in relieving the battalions on a full establishment, experience has shown that the small number of men available, after detachments for various duties have been made, are insufficient for the purposes of exercise. It would be necessary to abandon the idea of a thorough methodical company training, and thus some 13,000 men would be passed annually to the Reserve who had received an incomplete training.

When this evil was recognised, it was decided to connect the fourth battalions into bodies, which, while maintaining as far as possible their original object, could take their place both in peace and war with the other battalions. The law of the 28th June, 1896, therefore, provided that from the 1st April, 1897, without raising the peace strength, every two of the fourth battalions should be united as a single battalion, which would be brought up to a strength of about 500 by detaching a few men from each of the first three battalions. Every two of these united battalions is to form an infantry regiment, and the two regiments thus formed in each army corps are combined in an infantry brigade. This caused to be newly created 19 infantry brigade staffs (16 Prussian, 2 Bavarian, 1 Saxon), 42 infantry regiment staffs (33 Prussian, 4 Bavarian,

3 Saxon, 2 Wurtemberg), and 86 infantry battalions (66 Prussian, 10 Bavarian, 6 Saxon, 4 Wurtemberg).

On the completion of this re-organisation the following will be the composition of the German Army :—

Infantry - - - -	624 battalions
Cavalry - - - -	465 squadrons
Field artillery - - -	494 batteries
Foot ,, - - -	37 battalions
Pioneers - - - -	23 ,,
Railway troops - - -	7 ,,
Train - - - -	21 ,,

Increase in the Number of Officers.—In the Regular Army the number of second lieutenants admitted was 825 in excess of the vacancies that occurred amongst all ranks during the year.

In the Reserve and Landwehr the increase was 676.

Abyssinia.

The military importance of the country will in coming years be materially increased, after it has conquered its complete independence, both by means of a stricter centralisation on the basis of Menelik's successes of an increased employment of modern arms, and an improved training in their use by European instructors (Russian and Frenchmen).

Composition of the Forces.—In peace as well as in war the Army is composed of contingents of unequal strength from the several portions of the kingdom (Shoa, Harrar, Godsham, Amhara, Wollo-Galla, Tigré). In war, for fighting and camping, it is further formed into an advanced body, right wing, centre, left wing, and a rear body. Each of these portions, the strength of which bears a certain proportion to the whole force, consists of infantry and cavalry, sometimes also of artillery under a special commander, and is permanently composed of the same troops. The centre is always under the direct command of the commander-in-chief; in all important campaigns this is the Negus.

Strength.—The Active Army (Wotader) numbers, according to Ilg, whose estimate coincides with that of the Italian Cecchi, about 150,000 combatants. To these have to be added irregulars (Fanno), the numbers of which cannot be fixed with any certainty; and in some circumstances a sort of Landsturm. Various travellers give the number as much higher, but include probably the train. It is not, however, the number of combatants alone that is decisive, but still more the number of serviceable firearms available. During the last war these may be given as from 80,000 to 90,000, the best, and comparatively the greater number, of which were in Shoa and Harrar. The number of these will probably increase rapidly; the ship "Doelwyk," captured by the Italians in August, 1896, and released on the conclusion of peace with Menelik, alone carried 45,316 rifles and 5,025,832 cartridges.

Organisation.—Besides infantry, cavalry, and artillery, an ammunition park and supply troops are in existence. The creation of the last three

services, and of a more strongly-marked Army of the first Line, have been the work of Menelik, and they have been thoroughly carried into execution in South Abyssinia only.

The strength of the contingents to be furnished by the several regions is dependent upon the numbers of the population and the objects of the war. Generally speaking, a Ras has command of from 10,000 to 20,000 men; a Dedjasmatch about 5,000. There is a further delegation of command to commanders of 1,000, of 100, of 50, and of 10 men.

Arms.—The infantry are armed with rifles of every system; the greatest number have either been bought or captured in the field, and are Remington, Gras, and Vetterli rifles. A portion still takes the field armed with spear and shield, acquiring a rifle when opportunity occurs by death or capture in the course of the operations. The infantry also carry a sword, and very often a knife as well.

The cavalry have a carbine in place of the rifle, and many of them have the lance.

The artillery for employment in the field consists of 24 Hotchkiss guns arranged for pack transport, 2 Maxim guns, and a number of American mitrailleuses. There are further in possession, though not for employment in the field, twelve 8-centimetre muzzle-loaders, two 8-centimetre breech-loaders, and two guns of position taken from the Egyptians, and a considerable number of obsolete guns. At Amba Aladshi (7th December, 1895) four Italian 7-centimetre mountain guns fell into the hands of the Abyssinians, and at Adowa (1st March, 1896) 56 of a similar nature. The entire artillery park is in the hands of the Negus; the several Ras have only two guns apiece allotted to them.

Abyssinia is entirely dependent upon foreign countries for the supply of modern firearms and ammunition, notwithstanding that a manufactory for black powder exists in Shoa.

Afghanistan.

State of Railway Extension by England and Russia.—The trans-Caspian railway, which was opened in 1888, runs from Usun Ada on the Caspian, by Kisil Arvat, Geok-Tepe, Askabad, Nurek, and Merv, to Chardjui, crosses at this place the largest wooden bridge in the world over the Amu Darya, and runs on by Bokhara, Katta, and Kurgan, to Samarkand. An extension has been decided upon from Merv towards Kushk in the direction of Herat (about 30 versts); the surveys are already completed. The continuation of the railway from Samarkand to Tashkent, to the extent of 300 versts, is in course of construction. These two sections, together 330 versts, are to be completed within two years. By means of this, Russia will have approached right up to Afghanistan.

This has hastened the English in the construction of their railways in the Indian border territory. On the 1st January, 1892, by the opening of the Khojak tunnel, traffic was commenced on the Shikarpore-Quetta line as far as the most advanced British frontier post at New Chaman, 72 English miles from Kandahar, 441 from Herat, and 684 from Merv. Its

continuation to Kandahar is a settled matter, and, according to statements in the Press, this extension is already in course of construction.

Organisation.—The existing organisation of the Army was commenced by the present Ameer in 1885. During the last two years, and especially during 1896, great activity was displayed in its re-organisation. A peculiar method of recruiting has been introduced. Every eighth man of the population is by it made liable to service, which, if the population be estimated at six millions in round numbers, would give 75,000 men, or 1¼ per cent.

The present peace strength, as derived from private sources in Teheran, is about 60,000 infantry and 8,000 cavalry. About 120,000 rifles are available, of which some 70,000 are modern single-loaders, and 510 guns, of which about one-third are of modern systems.

The war strength of the Regular Forces could, it is stated by the same authority, be easily brought up to 100,000 men. The irregular troops, Militia, foot and horse, would probably amount to about a similar number.

The fortifications of Herat, Kabul, Farrah, Kala-Nau, Maimena, Kandahar, and Ghuzni, have been materially improved during the last two years. Herat especially, by the adoption of the English system, and by placing the magazines in security, has been secured from an assault by the Russians, and would require a regular siege for its reduction.

BULGARIA.

Peace Strength of Units:—

	Officers.	Men.	Horses.	Guns.
The battalion -	24	456	—	—
,, squadron -	5	144	100	—
,, battery - -	5	115	60	8

War Strength of Units:—

	Officers.	Men.	Horses.	Guns.
The field battalion -	14	1,063	(1,008 rifles)	—
,, squadron - -	6	227	230	—
,, battery - -	5	182	159	6 with 8 horsed ammunition wagons.

The reserve battalion has 10 officers and 859 men.

In consequence of the increase to the war establishments of the troops the war strength of the larger bodies is greater than in previous years.

Each of the six infantry divisions will consist of the following:—

	Officers.	Men.	Horses.
Divisional staff - - - -	9	41	48
4 infantry regiments - - -	268	18,000	888
1 artillery regiment - - -	41	1,151	1,015
Pioneer battalion - - -	14	596	67
2 squadrons divisional cavalry -	12	454	460
Total rationed strength - -	344	20,242	2,478

These numbers do not include the train and auxiliary services, the changes in which have not been settled.

The cavalry division will number:—

	Officers.	Men.	Horses.
Staff - - - - - -	5	14	26
Four cavalry regiments - -	104	3,240	3,386
Total rationed strength	109	3,254	3,412

The available strength of the Bulgarian Army, estimated in 1895 at 179,000 bayonets, 7,082 sabres, and possibly 432 guns in the Active Army, Reserve, and national levies, will by the increase to the establishments have received a material augmentation.

Frontier Guards.—In order to relieve the infantry of the duties of guarding the frontier, special companies, one per division, have been raised for the purpose; their strength varies from 200 to 400 men. They will no doubt be employed sooner or later to strengthen the Regular infantry formations.

Artillery.—The new formations of artillery, discussed in the previous year's reports, were not carried out exactly as had been contemplated in the original plan. Thus the new horse artillery battery that it was intended to add to the 4th Artillery Regiment was not raised, its place being taken by a field battery. The new formations actually carried out consisted of the creation of a third division (of 3 field batteries) to the 4th Artillery Regiment, of 3 new mountain batteries, and mountain divisions (each of 2 mountain batteries) for the 2nd, 3rd, and 4th Artillery Regiments. During 1897, a new division (of 3 batteries) will be created in the 1st, 2nd, 3rd, 5th, and 6th Regiments.

In war the first and second artillery divisions (6 field batteries) will form the divisional artillery of the six Active Army divisions. The remaining six artillery divisions (each of 3 field batteries), together with the Reserve batteries to be formed, will provide the divisional artillery for the six Reserve divisions. There will be sufficient modern material for the Reserve batteries, for the peace batteries consist of 8 guns, whereas in war the batteries have 6 guns only. Thus the 38 field batteries and the 1 horse battery on the peace establishment can furnish 78 guns, or 13 batteries of 6 guns.

Increase of Rank and File and Reduction of Train.—The changes that are being effected are worth noticing, though details are not yet complete. By them 22 rifles are to be added to every company on war strength (an increase from 230 to 252). This in the 24 regiments of the Active Army provides an increase of 8,448 rifles. The reductions in the train are no less important; in the infantry regiments the number of wagons is reduced from 69 to 49, equivalent to 20 vehicles less; in the artillery regiment the reduction is still greater, being from 136 to 85, or 51 less.

FRANCE.

Peace Strength of Units :—

	Officers.	Men.	Horses.	Guns.
Company - - -	3	126	—	—
Squadron - - -	6	144	139	—
Field battery - - -	5	103	61	4 to 6
Horse battery - -	5	105	87	4 to 6

The rifle companies have an establishment of 136 men, the companies of the Alpine battalions have 4 officers, 153 men. The companies, squadrons, and batteries in the 6th Region and the companies of some of the regiments of the 7th and 8th Army Corps have an increased establishment, which is met by most of the companies in the interior of France being on a reduced establishment. The companies in the 6th Region are to be brought up to 200 men in 1897.

War Strength of Units :—

	Officers.	Men.	Horses.
Company - - - -	4	251	—
Squadrons - - - -	5	155	160
Field battery - - -	4	about 180	163
Horse - - - - -	4	about 188	217

The total strength of the Army in 1896 amounted to 28,223 officers and 539,179 men, an increase on the preceding year of 363 officers and 16,667 men. The number of horses was 142,661, including 12,512 of the Gendarmerie, an increase of 930. The *Spectateur Militaire* estimates the number of able-bodied men in France who have received a more or less complete military training at about 4,800,000. In this calculation the average strength of the yearly classes, after the necessary annual deductions, is taken as 200,000 men.

No military legislation of a fundamental nature was effected in the year 1896; but several draft bills of some importance were laid before Parliament and the Army Committee. The first of these concerned the creation of a Colonial Army, under the Minister of Marine, to which the troops in the Colonies, the Marines, and part of the garrisons in Algeria and Tunis would belong, the rest of the existing 19th Army Corps being formed into a new army corps that would be available for employment in Europe. The second and third projects deal with the engagement and civil employment of non-commissioned officers. Looking to the diminished number of re-engaged non-commissioned officers during recent years, it is proposed to raise the yearly bounty from 100 to 200 francs, to re-establish the post of battalion adjutant, which had been abolished, and to extend the rules for the occupation of civil posts by non-commissioned officers of long service. The fourth project has reference to the organisation of command, the creation of a new grade of general, the abandonment of the age limit for generals of division and brigade, and a new organisation of the superior mititary courts, both in regard to their powers and composition.

New Formations.—By the law of the 25th July, 1893, the formation of 2 foot artillery battalions, each of 6 batteries, was contemplated, so

soon as the necessary requirements in r gard to finance and *personnel* could be satisfied. By a decree of the 18th February, 1896, the first 3 of these 12 batteries have been created, and they were allotted to the 6th Battalion, which has now 9 in place of 6 batteries.

Recruiting.—The number inscribed on the lists as having become liable for service in 1894 was 337,109 men, an increase of 6,911 over the preceding year. Of this number, 9,394 did not put in an appearance; 27,633 were pronounced totally unfitted for service.

The following was the distribution of those pronounced fitted to serve:—

Enrolled for service of from 2 to 3 years' duration	163,121
Enrolled for service for 1 year's duration	47,445
Postponed	46,427
Posted to the Auxiliary services	20,776
Excluded from service on account of disgraceful character	108
Included in the rolls for the Navy	31,599

Of the 1894 class, 30,885 men had previously entered the Army voluntarily.

Of the 40,082 men postponed in 1893 and the 21,122 in 1892, 18,854 were enrolled for the Army and 15,630 for the Auxiliary services.

In the course of the year 1894, 30,855 men engaged for voluntary service as follows:—

	3 years.	4 years.	5 years.	Total.
For the Navy	60	6	2,971	3,037
For Colonial troops	3,043	980	1,778	5,801
For Army of the Interior	5,868	9,995	730	16,593
Troops in Africa	5,454	2,822 in the two foreign regiments. 2,197 in the Algerian tirailleurs. 435 in the Spahis.		

Training of Men not Service with the Colours.—The numbers of the Reserve called out in 1896 were:—Officers, 7,401; men, 258,054. They were exercised during the period of the big autumn manœuvres between the 28th September and the 31st October.

Of the Territorial Army the numbers were 6,779 officers and 289,914 men (including 271 gendarmes). The majority of these were called up between the 28th September and the 10th October. The whole were armed with the Lebel rifle.

By order of the War Minister the individual training of the men was reduced as much as possible, and the time available devoted to training on the ground, musketry practice, and field duties. The allowance of ammunition was the following:—

For each infantry Reserve man	27 ball, 20 blank cartridges
For each infantryman of the Territorial Army	20 „ 6 „ „

For each cavalryman, Reserve and territorial	12	ball, 6 blank cartridges
For each artilleryman	18	,, —
For each man called up of the Customs and Forest formations	20	,, —

ITALY.

The strength of units in peace and war is as follows:—

Peace Strength:—

	Officers.	Men.	Horses.	Guns.
Infantry battalion	15	402	—	—
Squadron	4	165	142	—
Battery	3	90	45 to 42	4

War Strength:—

	Officers.	Men.	Horses.	Guns.
Infantry battalion	24	1019	—	—
Squadron	5	134	137	—
Battery	4	162	116	6

There are certain small differences in the strength of the Bersaglieri and Alpine troops from the rest of the infantry; also in that of the horse artillery and mountain batteries from the field batteries. Officers' horses are not included in the numbers of the mounted branches (squadron, 9; battery, 3).

The average total peace strength for 1896-7 was fixed at 194,000 men, but it is hoped to increase this number gradually to 215,000.

In war the Standing Army and the Mobile Militia form the field army, and number together 19,695 officers, 1,719,418 men, 111,274 horses, 1,608 guns, and 19,698 horsed vehicles. There are besides the separate Sardinian Militia, about 15,000 strong; and the Territorial Militia, which numbers 387,943 of all ranks.

Organisation.—The changes in the direction of the reduction of expenditure introduced by the Decree of the 6th November, 1894, have been delayed, and, as a fact, have never been given effect to by legislation. It was open, therefore, for a new War Minister to introduce a scheme of reform of his own, which received the sanction of the Senate; but his plans were dropped on his being replaced by a successor. The scheme as sanctioned by the Senate was to retain the cadres of the existing 12 army corps complete, while effecting economies by the reduction of units within the corps. This was to include the abolition of all the fourth companies of infantry battalions, and of the sixth squadrons of cavalry regiments; together, 327 companies and 24 squadrons. The Bersaglieri and Alpine troops were to be amalgamated and form 8 mountain brigades of frontier defence troops. The 24 field artillery regiments (each consisting now of 8 batteries of 6 guns) were to consist each of 6 batteries of 8 guns, so that the number of guns (1,152) would remain unchanged.

The principal advantage of this proposed re-organisation was that the remaining companies would have a higher peace strength. By raising the average strength of the whole active force from 194,000 to

207,000 men, the average strength of companies would be 102 men (in the summer half-year 127, in the winter period 72).

When the Minister of War, who had brought forward this plan, was replaced, it was withdrawn by his successor, who substituted for it a scheme of his own. He equally proposed to retain the 12 army corps and to raise the average strength. He also made further far-reaching proposals, including the placing of the recruiting arrangements on a national basis, and the completion upon mobilisation on a territorial basis; the fixing of the annual recruiting contingent at 100,000 men, to come up in March (the mounted branches in November or the beginning of December); the abolition of the second category; the formation of the Standing Army of 7, and the Mobile Militia of 5 annual classes; increase of the cadres of the Mobile Militia by 6 mountain batteries and 40 fortress artillery companies; re-organisation of the district commands, the existing 98 district companies (about 10,000 men) to be distributed amongst infantry regiments; mobilisation of the troops of the 1st and 2nd Line through the regiments, and completion in the garrisons before marching; and the re-organisation of the administration and finance services, having in view simplification and reductions in the *personnel*.

Montenegro.

Since July, 1896, the cadres of an instructional battalion have been in existence, which is to be filled up three times a year with 600 men, who are to serve with it for four months. In war, 43 battalions would be formed. Apparently there would be 8 brigades, the commanders of which are nominated, and are for the most part the commanders in peace of the brigade districts.

The arrangements for the formation of the higher units are not fixed, but would be dependent on the nature of the war. As a basis, 2 battalions form a brigade under a separate commander, and to each brigade is attached a division of artillery consisting of 4 mountain and 2 field guns.

The total strength of the available men liable to service amounted, in 1895, to 40,000, of whom 25,000 of the 1st class (men under 40), and 15,000 2nd class (men under 60), which exactly gives a percentage of 16 on the population of 250,000.

Re-organisation.—A new organic law prescribes that every Montenegrin capable of bearing arms shall serve four months in the Active Army, and belong to the Reserve during five years. All men capable of bearing arms belong to the national Militia until the age of 60.

In April, 1896, the Berdan rifles, presented by the Tsar of Russia the year before, were issued to the men of the 43 battalion districts. In January a Ukase was issued, requiring every Montenegrin warrior to be in possession of complete war equipment.

Greece.

The peace organisation of the Greek Army is in three general commands, having their headquarters at Larissa, Missolonghi, and Athens.

The first of these comprises 3 regiments of infantry of the Line of 3 battalions, 4 battalions Evzones, 1 cavalry regiment of 4 squadrons, and 1 regiment of field artillery of 4 field and 3 mountain batteries.

The second general command has 3 regiments of infantry of the Line of 3 battalions, 2 battalions Evzones, 1 regiment of cavalry of 4 squadrons, 1 field artillery regiment of 3 field and 3 mountain batteries.

The third general command has 4 regiments of infantry of the Line of 3 battalions, 2 battalions Evzones, 1 cavalry regiment of 4 squadrons, 1 field artillery regiment of 4 field and 3 mountain batteries, 1 regiment of engineers of 2 battalions, 1 telegraph company, and 1 train company.

The Estimates establishment of the whole of these services, including the gendarmerie (3,229 of all ranks), in peace was fixed at 1,880 officers, 23,453 other rank, and 3,294 horses and draught animals.

War Strength.—The following is a statement of the national strength, estimated by arms, of the Army of the 1st Line :—

	Men.	Horses.	Mules.
55 battalions - - - -	61,620	370	1,185
18 squadrons - - - -	2,880	2,700	102
27 batteries - - - -	6,942	2,797	2,492
15 technical companies - -	4,683	130	2,065
Train and Sanitary Services -	2,000	200	2,000
Gendarmerie - - - -	4,000	400	—
Total - -	82,125	6,597	7,844

The fighting strength is estimated at 61,130 bayonets, 2,700 sabres, and 156 guns.

The Territorial Army (infantry only) consists of 76,800 men, in round numbers; the Reserve of the Territorial Army of about 57,600.

The total strength of the armed forces available is, therefore, on paper, 216,525 men, 2,700 cavalry, and 156 guns—numbers which, looking to the inadequate arrangements for mobilisation and the deplorable financial situation, would never be realised.

Austria-Hungary.

The Landwehr in Hungary.—At the close of 1895, new regulations were issued for the guidance of the Landwehr district commands, the Inspector of Landwehr cavalry, and the Landwehr brigade commands.

Landwehr District Commands.—Hungary is divided into 7 Landwehr districts; each district consists of 4 recruiting districts (from 12 to 14 battalion districts), and includes 2 Landwehr infantry brigades. In each a Landwehr district commander is the supreme official in regard to the Landwehr and the Landsturm. He ranks with the Army Divisional Commander, but his sphere of action is equivalent to that of the Landwehr commander in Austria (equivalent to that of the army corps commander), and he is under the Hungarian Minister for Home Defence through the supreme commander of the Hungarian Landwehr.

The official location of the several district commanders is as follows: 1st, Buda-Pesth; 2nd, Szegedin; 3rd, Kaschau; 4th, Pressburg; 5th,

Stahlweissenburg; 6th, Klausenburg; 7th, Agram (the Croatian-Slavonic district). The boundaries of the districts by no means coincide with those of the army corps districts. The complete establishment of a Landwehr district command is from 21 to 24 officers and officials, and from 20 to 24 men.

The Hungarian Landwehr cavalry inspector has his office in Buda-Pesth. He is the organ of the Minister for Home Defence, he is an intermediary between the cavalry brigade commanders and the district commands in all personal matters concerning the officers and cadets of the Landwehr cavalry. His staff consists of a field officer qualified to perform the duties of the general staff as adjutant, a captain with similar qualifications as deputy adjutant, an officer and a non-commissioned officer as clerk, and an orderly.

Landwehr Brigade Commands.—In peace the Hungarian Landwehr troops are grouped in 14 infantry brigades (Nos. 45 and 46, and 73 to 84), and 3 cavalry brigades (Nos. 1 to 3).

The brigade commanders have the same status as those of the Army, and form the intermediary between the troops and the Landwehr district commands. Each brigade commander has a superior officer qualified for the general staff as Brigade-Major.

In war a Territorial Landwehr infantry commander is appointed at the headquarters of each district command to command the Landwehr and Landsturm Ersatz corps left behind. At the peace station of each Landwehr cavalry brigade command an inspector of cavalry Ersatz troops is similarly appointed.

New Formations.—On the 1st October a company, with the number 15, was added to each of the Bosnia-Herzegovina infantry regiments. Simultaneously a fourth battalion staff was instituted in each of the regiments, and the 13th, 14th, and 15th Companies constituted in a battalion. With the probable formation in the autumn of 1897 of a 16th Company, the constitution of these regiments in four battalions and an Ersatz cadre battalion will be completed.

A 3rd Artillery Inspection was formed in Sarajewo. There are, therefore, now 3 such inspections for the 11 mountain batteries in Bosnia and Herzegovina. Of these the 1st and 3rd at Sarajewo have each 3 batteries; the 2nd at Mostar has 5 batteries. There is a 4th Inspection, equally at Sarajewo, for the fortress artillery companies.

Since the 1st May, 1896, all captains of infantry and rifles are mounted (the horses are their own property). A mounted regimental bugler, ranking as Sergeant-Major, who is to be employed also as a "Meldereiter," has been added to the staff of each infantry regiment; the regimental band has been reduced by one musician to meet this increase. The Tyrolese rifle regiments and the Feldjäger battalions had already mounted buglers.

Since October, 1896, the companies of the Austrian Landwehr infantry have actually been at the strength (54 men) fixed by the law of 1894. From the 1st January, 1897, a mounted bugler (Meldereiter) was

added to the regimental staffs, a reduction of one battalion bugler being made at the same time.

On the 1st October, 1896, the new regulations for the Hungarian Landwehr infantry came into force. It is now divided into 28 regiments, each of which consists of a regimental staff, either 3 or 4 field battalions (4 companies), and one Ersatz cadre battalion. The total number of field battalions is 94; consequently, there are 10 regiments of 4 battalions, and 18 of 3 battalions. In 10 of the regiments there is further a Reserve cadre, from which, in war, Reserve formations are constituted as men become available.

The regiments are permanently located in the recruiting districts, the cadres in the station of the regimental staff. The augmentation stores and train material are in battalion charge.

The most important innovation is that the whole of the recruits of the Hungarian Landwehr infantry are to be called up on the 6th October of the year they become liable to service. By this arrangement they serve for the whole two years provided by the law, instead of for 19 months only as has hitherto been the case.

ROUMANIA.

Peace Strength.—The permanent force comprises 4 army corps, the headquarters of which are located at Crajova, Bucharest, Galatz, and Jassy; an independent division in the Dobrudscha, and an independent cavalry division.

The establishments of these for 1896 amounted to 45,481 men and 9,897 horses for permanent service. The numbers for temporary service were 70,270 men and 7,200 horses.

The actual strength of the permanent service men, however, hardly amounted at any time to 43,000 men.

Some modifications in the direction of increase will be effected in the matter of numbers by the changes to be mentioned as having been made in 1896. The details of these are not available; but it may be stated generally, that the limit of men available from all sources for war is 250,000; but that arms and equipment would be available only for 170,000 at the highest computation.

The rationed strength of the 4 army corps forming the field army will not differ materially from that given for 1895, viz., 3,948 officers, 167,316 men, 52,604 horses, 384 guns, 7,256 wagons, 800 draught animals; and the fighting strength, 140,352 men.

Increase to Artillery.—On the 1st October, 1896, sixth batteries were added to the 8th, 9th, 10th, and 12th Regiments. The first two batteries are "light" (7·5 centimetres), the rest "heavy" (8·7 centimetres).

Organisation of Militia Battalions.—On the 1st October, 1896, cadres were formed with each of the existing 34 infantry regiments for the men of the Militia. The new cadres consist in each battalion of 1 field officer as commander, 9 officers, 10 non-commissioned officers, and 11 men. The officers were taken from the Active, Reserve, Militia, and

pensioned lists. The men are to be called out each year for a training of ten days' duration. In peace-time the battalions form the fourth battalion in each regiment, but their collection in regiments is to be anticipated at an early date. The war strength was fixed at 281 men per company, and 1,123 per battalion.

Previously, the 2nd Line "Militzia" men between 30 and 36 years of age, and the 3rd Line "Gloata" men between 36 and 45 years of age, had no independent cadre, and formed consequently no more than a reservoir of men for the 1st Line.

Projected Increase to Cavalry.—The regiments, both of Roschiori and Kalaraschi, have at present only 4 squadrons, the increase of which to 5 squadrons is contemplated. For the moment, however, only a depôt squadron will be formed in each regiment. The formation of detachments of Meldereiter for the army corps is also projected.

Location.—It has been stated that it is intended to move the location of the 8th Division from Botosani to Bakeu. The former place is situated on the Sikora, a tributary of the Pruth, 105 kilometres north-east of Jassy, and has some 32,000 inhabitants. Its distant position and its vicinity to the Russian frontier render it not only difficult, but also dangerous to call up and assemble the troops.

Bakeu is the principal place of the Moldau district; it is a small town of 13,000 inhabitants, and is situated on the Bistritza, a tributary of the Sereth, 80 kilometres south-west of Jassy, on the railway line running from Galatz to Czernowitz. The location of the eight divisions of the Roumanian Army, therefore, in future will be:—1. Turn-Severin. 2. Crajova. 3. Targovistea. 4. Bucharest. 5. Buzen. 6. Foksani. 7. Roman. 8. Bakeu.

Russia.

Peace Strength.—This has been briefly summarised (Rediger, 1894) as follows:—

Regular Army	800,000	men
Cossack troops	59,000	,,
Frontier Guards	26,000	,,
Finland troops	5,600	,,
Militia	3,300	,,
Total	893,900	,,

The distribution of these was:—

Europe	690,000	men.
Caucasus	112,000	,,
Asia	91,000	,,

Since 1894 and 1895 there have been material increases: to the infantry, of a further Re erve battalion and 1 fortress regiment; to the cavalry, of 4 new regiments and Ersatz cadres; to the artillery, of more than 20 batteries on war strength and fortress companies; and to the engineers, of 10 battalions.

As, moreover, a not inconsiderable portion of the troops are not of the strength prescribed as their normal establishment, but are nearly or entirely at war strength, the present peace strength of the Russian Army cannot be far short of a million of men, if it does not actually exceed this number.

War Strength.—The total strength, exclusive of local troops, transport and prison commands, gendarmerie, Militia, staffs, etc., is estimated at 61,300 officers and 3,400,000 other ranks, made up as follows:—

	Officers.	Other ranks.
Field troops - - -	24,900	1,200,000
Reserve troops - - -	15,500	875,000
Fortress ,, - - -	4,000	260,000
Ersatz ,, - - -	5,500	306,000
Reichswehr ,, - - -	10,400	730,000
Frontier Guards - - -	800	29,000

Including non-combatants in the grand total of the Russian Army, 4 millions of men will not be too high an estimate.

New Reserve and Fortress Regiments.—During 1897 the Guard Reserve cadre battalion and three other cadre battalions are each to be expanded into a similar number of Reserve regiments, each of two battalions.

Similarly, 16 fortress battalions are to be made into fortress regiments, each of two battalions.

Formation of an Independent Cavalry Corps.—By an Order of the 14th June, 1896, the 13th and 14th Cavalry Divisions have been formed into a cavalry corps, in which also the 20th, 21st, and 23rd Horse Artillery Batteries, formerly belonging to those divisions, are included. The 1st Don Cossack Division, hitherto an independent one, replaces the 14th Cavalry Division with the 14th Army Corps. The 15th Cavalry Division is now the only one in the Warsaw Military District that does not form part of a larger organisation.

Formation of a Second Independent Cavalry Brigade.—By an Order dated 16th September, 1896, a second independent cavalry brigade was to be formed out of the two Dragoon regiments No. 51 (Tschernigov) and No. 52 (Njäschin), that were to be newly raised. Simultaneously, the cadres of the cavalry Ersatz No. 16 and No. 17 were each to be increased by a third sub-division.

Heretofore, exclusive of the two Guards Divisions and the Caucasian Division, there were only 15 cavalry divisions and one independent cavalry brigade, formed the previous year as the nucleus of a sixteenth division, but consisting for the time of only two Dragoon regiments, and attached to the 16th Army Corps.

The newly-raised second independent cavalry brigade may be regarded as the nucleus of a further 17th Cavalry Division. The commanders of the two brigades have already the privileges of division commanders, and are provided with equivalent staffs. The staff of the new brigade is located at Orel, in the military district of Moscow, the regiments at Orel and Jelez.

Horse Artillery. — The formation of divisions of 2 batteries made further progress during 1896. Besides the Guard, there are now divisions, formed either wholly of Regular batteries or partly of Regular and partly of Cossack batteries, with the 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, and 14th Cavalry Divisions. There only remains now outside this formation the 1st and 2nd Batteries, with the 1st Cavalry Division, and the 20th and 22nd Batteries, with the 13th and 1st Cavalry Divisions.

Caucasian Train Battalion. — Hitherto there has been no train battalion belonging to the Army of the Caucasus; in Europe there are five such battalions. On the 1st January, 1897, a battalion to consist provisionally of two companies only was to be formed.

Cossack Formation. — The hitherto independent Terek Cossack Brigade, the headquarters of which were at Vladikavkas, has been broken up. One of the regiments that composed it has been relegated to the 2nd Caucasian Cossack Division, which was exceptional previous to this in having only three regiments. The second regiment has been placed directly under the Ataman of the Terek formations.

The second levy of the Kuban Cossacks for the formation of the Plastun battalions has been increased so as to provide 6 in place of 4 battalions.

Increase to the Siberian Troops. — The 2 West Siberian Line battalions transferred the previous year to East Siberia, were renumbered as the 8th and 11th Battalions.

The previously existing 8th East Siberia Line Battalion, augmented by 16 companies from European Russia, was converted into the Vladivostock fortress infantry regiment, to consist of 5 battalions, each of 4 companies. On the 31st July, the formation was ordered of a new Reserve cadre battalion at Tschita in Transbaikal, which is gradually to be brought up to the establishment of the Strjätensk battalion, and be expanded in war to 5 battalions. The infantry in East Siberia will then consist of 37 battalions, not including the Vladivostock fortress regiment, numbering about 40,000 men.

The artillery in the Amur military district has received an increment, by the expansion of the previously existing half mountain batteries of the 1st East Siberian Artillery Brigade into complete batteries on war strength, numbered the 7th and 8th. The 5th and 6th are mountain batteries, and the 1st to 4th field batteries. Besides these 8 battalions, there are available in East Siberia the 2nd brigade of 4 field batteries, a Transbaikal division of 2 field batteries, and 2 Cossack batteries. There are, therefore, in all, 16 batteries, besides a battalion lately formed from 5 fortress artillery companies at Vladivostock.

Of technical troops, a fortress sapper company has been formed for Vladivostock. There existed already a sapper battalion of 4 companies, a railway battalion, and a torpedo company. Thus the Amur military district is now also well provided with technical troops. In war, including the available Cossack cavalry, a strong army corps could be formed provisionally

New Distribution of the Troops and Administration in the General Government of Turkestan.—By an Order of the 3rd September, 1896, some radical changes were effected.

Three independent Line brigades were formed out of 14 of the available 20 Turkestan Line battalions; of these, 2 brigades consist of 5 battalions each and the third of 4. Their commanders have the powers and duties of a division commander, also his staff. The previously existing four Line brigades were broken up.

The existing Line battalions not taken into the new brigades, Nos. 1, 7, 10, 11, and 16, become Line cadre battalions, each of which, similarly to the Reserve cadre battalions, is to be expanded into 5 battalions on mobilisation. In peace they are to have 5 companies. One battalion remains independent. Besides the above there will be 5 of the existing local detachments raised to a higher strength; 6 others are disbanded.

An independent Turkestan Cossack brigade is to be formed of the Cossack troops employed in Turkestan, viz., 2nd Ural Regiment, 4th, 5th, and 6th Orenburg Regiment, and 2 sotnias (Nos. 1 and 3) of the 1st Astrachan Regiment. Its commander has the same status and staff as the other brigade commanders.

All the field troops located in Turkestan, including besides the rifle formations, and artillery, the Line brigades and the Cossack Brigade are no longer under the immediate orders of the military governors of the several provinces of Syr Darya, Samarkand, and Ferghana, but are responsible to the superior commander of the military district. There is a separate commander for Syr Darya. The three military governors continue to exercise command over the local detachments, the administrative services, hospitals, and those troops, including the newly-organised Line cadre battalions, that do not march in the event of war, but remain for the purpose of keeping things quiet in the country.

The intention in placing the independent brigades directly under the superior commander is to give to the Turkestan forces a more compact impress and uniform training, with a view to their employment against a foreign foe. Simultaneously the expansion and completion of the troops is provided for by cadre formations on the European model.

Artillery Parks.—Under the regulations previously in force there were "flying parks" for the 48 Active infantry divisions and their artillery, a flying mountain artillery park for 7 brigades of rifles (there was none for the Rifle Brigade of the Guard or for the native Caucasus Brigade), and 3 parks for the mortar regiments. These parks existed in cadre during peace, and those for the 48 infantry divisions were to be expanded in war into park brigades, each consisting of from 3 to 4 parks. There were further 82¾ so-called "mobile parks," with only a small cadre establishment to form in war as the second line of ammunition supply for the Active infantry divisions (for the Reserve infantry divisions as first line). The "local parks" had to serve as the third line of ammunition supply.

By an Order of August, 1896, the organisation of the parks in European Russia and the Caucasus has been altered in the following manner :—

1. Each Active infantry division has, as before, a flying park in peace, which is expanded in war into a park brigade. If the brigade has only to supply field batteries (heavy and light) with gun ammunition, 3 mixed parks (for infantry and artillery) belong to it. If there is mountain artillery also, then there is a mountain park belonging to the park brigade. The war establishment of the several flying parks depends on the nature of the batteries supplied by them.
2. The flying rifle parks are to have the same establishment in peace as previously. In war the establishments differ, according to the troops to be supplied. For instance, each of the 5 European Rifle Brigades has 4 regiments of 2 battalions ; the Guard and the 2 Caucasian Rifle Brigades have only 4 battalions each ; the Finland Brigade, which in war is to be expanded into 4 regiments of 4 battalions, a complete division, has 2 parks. A park with mountain artillery ammunition is provided also for the Caucasus Rifle Brigade.
3. Mobile parks will no longer exist in peace, and in war their duties will fall to one of the flying parks of the army corps concerned, nominated for the purpose by the head of the corps artillery.

Ersatz Formations for the Asiatic Cossacks.—Hitherto there have been none ; the provisions in regard to the completion in men and horses in war, and the establishment of the mounted Ersatz sotnias previously in force in Europe and the Caucasus have been extended to the Siberian and Semirgätch cossacks.

Field Hospitals for the Rifle Brigades.—Previously these troops have been dependent on the divisional hospitals in war. Orders have now been given for the 1st, 2nd, 3rd and 5th Brigades to be each provided in war with a brigade hospital, to be formed and equipped on similar lines to the divisional hospitals, though on a smaller scale.

Mobilisation Practices.—During the past winter there have been numerous exercises in mobilisation throughout the Army, and more particularly in the Petersburg military district. In March the Guard Lancer Regiment, quartered at Peterhof, the Guard Rifle Regiment and 3 batteries were mobilised and inspected. After the completion of the mobilisation, in which men and horses of other bodies of troops had to participate, exercises in marching and entraining were always held.

Summer Exercises.—In 1896, 84 per cent. of the entire infantry, 92 per cent. of the cavalry, and 97 per cent. of the artillery took part in exercises with combined arms.

There were employed in manœuvres with changing quarters, that is, outside the areas of the camps, 555¾ battalions, 292½ squadrons and sotnias, and 162 batteries.

Winter Training.—The regulations by which in winter, besides the detailed training of the recruits and older soldiers of the several arms, exercises are prescribed in cadre formations, marching and manœuvres in combination with field firing, and practice in the construction of shelter trenches, sometimes in snow, appear to be given effect to more and more.

Exercises by Men of the Reichswehr.—The men of the first category of the Reichswehr not taken for the Standing Army are liable during the four first years of their enrolment to two trainings each of four weeks' duration. The trainings take place at the station of the district commander, either in the spring or autumn. The training staff is very small, being in the proportion of 1 officer for every 100 men, and 1 instructor to every 20. The men are not provided with uniform, but only with arms and equipment. The conditions do not seem favourable, but, according to Russian authorities, the results are very satisfactory, even as regards shooting and company drill.

Re-armament of the Infantry.—The field and reserve troops, both in Europe and Asia were in possession of the new rifle early this year, and the whole supply for all services was to be ready some months later.

SERVIA.

Peace Organisation.—The distribution of the Army is in 5 divisions, each of which consists of 2 regiments, together 5 battalions, each of 4 companies, 1 regiment of field artillery of 2 sub-divisions, together 7 batteries, 1 train squadron and 1 sanitary company. The 3rd Division has 1 battalion more and 1 guard regiment of cavalry of 3 squadrons, also 1 railway company; it has, however, only 6 field batteries. The 1st Division has 1 regiment of cavalry of 3 squadrons, 1 regiment of fortress artillery of 2 battalions, together 7 companies and 2 battalions of engineers, together 7 companies. The 5th Division has ½ battalion of 2 companies of pontoon troops.

This is an increase of 6 battalions on former years.

The strength laid down in the Estimates for 1896 was 970 officers, 21,200 other ranks, 4,846 horses and 184 guns. It was never reached during any time of the year. Before the recruits were embodied, at the beginning of 1896, the strength as derived from official sources was 898 officers, 15,982 men, 3,597 horses and 150 oxen.

War Strength.—The rationed strength of each of the 5 divisions of the Regular Army is 468 officers, 79 surgeons, officials, etc., 20,834 men, 3,883 horses, 1,782 oxen, 1,296 wagons. The fighting units comprise 16½ battalions, 2 squadrons, and 9 batteries, with 14,500 rifles, 340 sabres, and 54 guns.

The rationed strength of the cavalry brigade is 74 officers, 12 surgeons, etc., 2,531 men, 2,780 horses, 124 wagons. Fighting strength: 2,060 sabres and 6 guns.

The rationed strength of the entire Regular Army is 2,681 officers, 504 surgeons, officials, etc., 126,932 men (including about 10,000 Ersatz troops), 25,212 horses, 10,943 oxen, 7,283 wagons, and 632 ammunition carts. Fighting units: 80 battalions, 30 companies, 24 squadrons (including 2 Life Guard squadrons), 56 batteries, with, in round numbers, 80,000 rifles, 4,000 sabres, and 316 guns.

The National Levy, 1st Ban, is estimated to produce a rationed strength of, in round numbers, 124,000 of all ranks (including about 25,000 Ersatz troops), 14,840 horses, 5,720 oxen, 3,917 wagons, 160 ammunition carts. Fighting units: 80 battalions, 20 companies, 10 squadrons, 20 batteries; in round numbers, 80,000 rifles, 1,800 sabres, and 80 guns.

The National Levy, 2nd Ban, is calculated to number about 62,000 officers and men, 6,300 horses, some thousands of oxen, and 554 wagons. Fighting strength: 60 battalions, 10 companies, 5 squadrons, with 51,300 rifles and 790 sabres.

The foregoing numbers would give for the whole armed forces a strength of 316,117 men, which is 14 per cent. of the entire population. The want of officers, insufficient cadres for the levies of the 1st Ban, the absence of any cadres for those of the 2nd Ban, and the difficulties in the way of getting up the horses and vehicles required, would all operate against the realisation of the estimates indicated. In the most favourable circumstances, which would be with sufficient financial means available, probably about half the total number given above would be forthcoming.

Recruiting.—Of the 21,000 men who composed the 1896 contingent, 6,000 were dispensed from active service; only about 15,000, therefore, were available for enrolment.

The law regarding liability to service of 1886 was modified in many respects by the law of the 1st January, 1896. The modifications were mostly in the direction of lightening the service to professional men and others. The duration of service in the Line continued as before to be for 2 years.

Owing to financial consideration the re-armament of the infantry with another magazine rifle has been postponed; and, consequently, Servia is behind all the neighbouring States in regard to the efficacy of its infantry arm.

Spain.

The peace organisation of the Spanish Army of the peninsula is in 8 army corps, of which the eighth is now in course of formation, and consists only of 1 division.

Each corps is given in this organisation a military region or district:

The 1st District includes New Castile, Estremadura, Segovia, Avila, Toledo, Ciudad Real, Badajos, and Cacéres.

The 2nd District.—Seville, Granada, Cordoba, Huelva, Cadiz, Jaen, Malaga, and Almeira.

The 3rd District.—Valencia, Castellon de la Plana, Alicante, Murcia, Albacete, and Cuenca.

The 4th District. — Catalonia, Barcelona, Gerona, Lerida, and Tarragona.

The 5th District.—Aragon, Saragossa, Huesca, Ternel, Soria, and Guadalajara.

The 6th District. — Burgos, Navarre, Alaba, Guipuzcoa, Biscay, Santander, and Logroño.

The 7th District.—Old Castile, Valladolid, Palencia, Salamanca, Zamora, Léon, and Oviedo.

The 8th District.—Gallicia, Corunna, Lugo, Orense, and Pontevedra.

A new recruiting zone has also been established in Vittoria.

War Strength.—In March, 1896, exclusive of 56 Line battalions, and 10 rifle battalions then in Cuba, there were available for mobilisation in the peninsula, including the garrisons of the Balearic and Canary Islands, and of North Africa :—

Infantry :—

56 second battalions at 1,000 - -	56,000 men
56 third ,, ,, - -	56,000 ,,
10 rifle battalions at 1,200 - -	12,000 ,,

Cavalry :—

28 regiments at 596 horses and 700 men	19,600 men

Artillery :—

14 Field artillery regiments, each of 8 batteries of 6 guns, with an equal number of artillery and infantry ammunition columns - - -	25,606 men
3 Mountain artillery regiments and ammunition columns - - -	7,254 ,,
9 Battalions fortress artillery, partly of 6, partly of 4 companies - - -	8,175 ,,

Engineers :—

4 Sapper and miner regiment at 2,000 -	8,000 men
1 Pontoon regiment - - - -	3,442 ,,
1 Railway ,, - - - -	1,040 ,,
1 Telegraph battalion - - - -	1,272 ,,
Total - - - -	198,389 ,,

To these have to be added the administrative and sanitary services, 4,845 men. The cavalry takes the field with 16,708 horses ; the artillery has 816 field guns.

The following Reserve troops were also available :—

Infantry :—

112 Reserve battalions (56 regiments of 3 battalions) at 1,000 men - - 112,000 men

Cavalry :—

14 Reserve regiments of 4 squadrons, with 600 horses and 702 men - 9,828 ,,

Artillery :—

7 Field artillery regiments, 1 for each army corps district, and 136 guns - 14,140 ,,

Engineers :—

New formations - - - - - 6,000 ,,

Total - - - - 141,968 ,,

Apart, therefore, from the troops in Cuba, 130,000 men in round numbers, there were in March, 1896, available on mobilisation 340,000 men, with 25,108 horses (cavalry), and 952 guns.

TURKEY.

Peace Establishment.—The battalion strength is fixed at 18 officers and 800 men for the European garrisons, furnished by the 2nd and 3rd Corps (Adrianople and Salonica); 500 men for those of the 1st Corps (Constantinople), and 400 for the Asiatic garrisons.

The cavalry squadron has a uniform establishment of 6 officers, 112 men, and 100 horses; the field battery of artillery, one of 4 officers, 96 men, 60 horses, and 6 guns. As a fact, the actual strength of the battalions in Europe has seldom exceeded 550, and of those in Asia 300 men; equally the actual strength of squadrons has been between 50 and 100 men, and from 50 to 80 horses.

The total rationed strength of the Turkish Army, including some mobilised Redif (Landwehr) battalions, was in round numbers 250,000 men at the commencement of 1897.

The distribution of the Army and recruiting areas is in 7 army districts, the headquarters of which are as follows :—

1st, Constantinople; 2nd, Adrianople; 3rd, Salonica; 4th, Erzeroum; 5th, Damascus, with the Crete Division; 6th, Bagdad; 7th, Yemen.

There are also two independent divisions in Hedja and Tripoli.

War Strength.—In war, each of the first 6 army districts should form 4 army corps, 1 of Line troops (Nizamie), 2 of Landwehr (Redif), and 1 of Landsturm (Mustahfiz).

The normal formation of a Line army corps is 2 infantry divisions (26 to 34 battalions, 72 guns), 1 cavalry division (24 to 30 squadrons, 18 guns), corps artillery (2 field divisions, 36 guns), 1 engineer battalion, 1 telegraph company, 1 train battalion (3 companies), 3 artillery train companies, 1 sanitary division, and 1 intendance division; total, 26 to 34

battalions, 5 technical companies, 24 to 30 squadrons, 126 guns, and 6 train companies.

The rationed strength should respectively be 1,150 officers, 32,000 men, 6,600 horses; and 1,400 officers, 40,300 men, and 800 horses.

The fighting strength respectively 22,880 or 29,220 bayonets, 3,366 or 4,194 sabres, and 126 guns. There are besides, for special employment in each of the 1st and 5th Army Corps, 6 mountain batteries (36 guns); in the 6th Corps 2 mountain batteries, and in the 7th Corps 4. In each of the 2nd and 3rd Corps there are, further, 6 howitzer batteries (36 guns). There are no Landwehr corps in the 7th District.

In the composition of the Landwehr corps there are wanting 2 rifle battalions and 2 divisions (6 batteries) field artillery. The technical and train formations, also the corps artillery, would have to be created on mobilisation. It is probable that, as in the past, the division would prove to be the highest formation practicable with these troops.

No preparations whatever have been made for the creation of the 5th or Landsturm Army Corps; it is improbable that anything could be effected beyond forming Landsturm battalions, and it is possible that the men of this category will be treated, as hitherto, as a general reservoir for the Line and Landwehr formations.

Within from two to three months Turkey, after a general mobilisation, may be able to place some 400,000 men in the field, and during the course of a war of some duration she might collect as many again—together as a maximum 800,000 men.

Infantry, New Formations.—During 1896 the 3rd Corps District was re-arranged, 8 new battalions were formed, and 21 battalions transferred from the 1st and 5th Corps. By these means the strength of the 3rd Corps was raised to 64 battalions.

Five new battalions were raised in the 5th Corps, and though it is not clear how far the contemplated formation of 4 new battalions in the Hedja Division has progressed, it is known that 1,500 men were sent there for the purpose in September, 1896. In February, 1896, it was determined to add a new third (19th) division to the 4th Corps; and of the 17 battalions required, 12 had been constituted by the autumn, and the formation of the rest was in course of preparation.

At the beginning of April it was decided to form a fourth Line division in addition to the third division then in course of formation. The creation of this new fourth division (No. 20) was not to be commenced until the third (No. 19) had been completed. By these new formations the Line troops on the Russian frontier have been doubled. The division into 2 corps of the 4th Corps district as well as of the third may be expected later. Besides this a new (that is, a fifth) Landwehr division is to be raised in the 4th Corps district.

The main object of the material reinforcement of the forces on the Russian frontier is not far to seek. It is the preparation for a future (the eleventh) conflict with Russia, the hereditary foe. But there were other weighty grounds for it; the foremost of these being the subjection of the

Kurds, whose self-confidence and power have been greatly increased by the creation of the irregular Kurdish cavalry (Hamidié).

Artillery.—The 2 new howitzer batteries of the 2nd and 3rd Corps were left unhorsed in 1896.

Peace Distribution.—In February, 1897, the grouping of the Standing Army was as indicated in the following table :—

Army Corps and Division Districts	Line battalions	Squadrons	Batteries Artillery			Howitzer batteries	Squadrons Kurdish Hamidié
			Field	Mntn	Horse		
1st Corps, Constantinople ...	30¼	28	30	6	3	—	—
2nd ,, Adrianople ...	34	30	30	6	3	6	—
3rd ,, Salonica	64	35	42	6	3	6	—
4th ,, Erzinjan	51	30	30	6	3	—	215
5th ,, Damascus... ...	22	27	17	6	3	—	22
5th Cretan Division	16	2	—	4	—	—	—
6th Corps, Bagdad	34	30	12	2	3	—	—
7th ,, Yemen	32	—	3	4	—	—	—
Hedja Division	17	5	1	2	—	—	—
Tripoli ,, ...	18	10	4	2	—	—	—
Total	318¼	197	169	44	18	12	237

There were also available in the 5th Corps District 2 battalions, 1 squadron of the Lebanon Militia. Of the 16 battalions forming part of the Cretan Division, 12 belonged to the 5th and 4 to the 3rd Corps.

One battalion of the 1st Corps is included in the 18 battalions of the Tripoli Division. Of the Kurdish Hamidié, 4 squadrons were doing duty in Constantinople during six months of 1896.

In October, 1896, there were in a state of embodiment, consequent on the disturbances that had occurred in European and Asiatic Turkey, 125 Landwehr battalions. These were all disembodied between November, 1896, and May, 1897, before the commencement of hostilities with Greece. The brigade was the highest organisation adopted with them.

Infantry Tactics.

The publication of General von Verdy's third and concluding part of "Studien über Felddienst" leads to some remarks. It deals with rear-guards and flank detachments, and particular attention is given to the imparting of orders in the field. This opportunity may be taken of pointing out how much the present conditions of fighting have increased the difficulty of conveying orders to the infantry in the first line, and it is questionable whether sufficient weight is given to this in peace training. But the influence of the framing and imparting of orders has so much influence on tactical success or miscarriage, that the chapter on the subject deserves earnest attention.

The finest tactical conceptions and arrangements are valueless in practice, unless they can be converted into practical procedure. Formerly these difficulties were much less, because use could be made of the command by word of mouth, even in the closest proximity to the enemy. Command as such, the controling of the troops with the voice, is now

only practicable up to the company inclusive, and then only when outside the sphere of effective fire.

The regulations do not attribute sufficient importance to this. Everywhere troops are still given commands; even regiments and brigades are still commanded by word of mouth, and the French regulations even lay down that during the fight the regimental commander shall intervene in critical situations with "loud, energetic command."

Until the regulations are freed from such unservicelike ballast, a simple, clear, and really practicable mechanism of command will not come into existence. In this respect the other two arms of the Service are in advance, for they can get some assistance from signals. The practice is a survival of the habitudes of the drill-ground, which are in contradiction with the principle that "the troops shall not have to abandon in the field what they have learnt on the drill-ground." As a fact, the battalion commander in war can, at the most, give the command "Stand to! Unpile arms!" Notwithstanding this, the regulations contain all sorts of detailed instructions regarding the drill of battalions, regiments, and brigades by word of command. But commanding or drilling are purely mechanical exercises—a means to the end, as regards discipline—which have little to do with leading or with imparting orders in service conditions. Consequently, it is often seen that the performances of the so-called good "drill" are of little value when it is a question of bringing up and engaging troops; when, in a word, it is a matter of preparing the tactical decision and remaining master of the tactical situation, so far as this is possible.

It remains now to be pointed out that the ample peace apparatus, with its organs of command; the riding about of the commanders and adjutants, even at close distances; the frequent reports received, even during the action; the personal intervention of the superior commander,—would in war suffer such limitations that a mechanism of command which is accustomed to work with the assistance of these factors can only be regarded as a failure.

But tactical success depends, in the first place, apart from moral considerations, upon the tactical method being good, and this again is dependent upon the peace training. By "method" is understood principally the tactical procedure, and this is inseparable from the manner in which the apparatus of command operates. In the past year the number has increased of those who place great value upon tactical method in contradistinction to those who think they can overlook the dangers of the so-called free procedure.

This question is cleverly dealt with from the larger points of view by the Austrian Lieut.-Colonel Freiherr von Binder-Krieglstein, in "Geist und Stoff im Kriege." Amongst other points, he comes to the conclusion, based on military history, that the worth of the military implement is the true secret of success in war; and not the superior higher leading. The military implement, however, appears only to be good when it is capable of extraordinary tactical performances; and it is these again which

frequently bring about, as if of themselves, the so-called strategical successes.

The "tactical reports" have for years raised the demand to base the tactics of infantry on the set battle. This has not been from prejudice against the tactical confusion with small bodies, which may be of use, within definite limits, especially for the training of leaders, but because the form of future wars will be infantry fighting in large masses in a comparatively narrow space, for which end tactical habitudes of detachment warfare could only act detrimentally. This applies not only in regard to tactical leading, but also to the tactical procedure, including the formations adopted. This tendency, supported by the experiences of the Franco-German war—in which detachment warfare played no *rôle* up to and including the battle of Sedan—has made progress during 1896. Especially in Germany it was directly promoted by the extensive exercise-grounds, which allow of working in service conditions in large bodies.

As regards the planned attack, a welcome advance has been made during the year, in so far as the theory of a near approach without firing has become more and more untenable. Such a procedure is the exact reverse of sound tactics, because it is impracticable in war, and, viewed clearly, is only veiled shock-tactics, which in 1866 and 1870-71 ended wherever they were carried out in tactical failure.

Looking, however, to the fact that the conflict in regard to the infantry attack has not yet been settled, it may be worth while to consider the phases of such an operation from the deployment for action up to the final charge, with special reference to the opposing views on the subject. By this course also the best opportunity will be given the reader to form his own judgment regarding the utility of either method. By utility, it is to be understood, in the first place, practicability before the enemy under similar physical and moral conditions. But this is not sufficient, looking to the strife of opinions, to gain fixed points for an unbiassed judgment; for without such points, particularly in tactical matters, there is the danger of unprofitable discussion, greater in degree according as an attempt is made to rely on the authority of one or other of the regulations. Regulations have not always been the means of tactical progress, and a scientific discussion of definite tactical questions would fall through from mental constraint if the regulations were to be regarded as infallible.

Besides psychology, there are also to be considered as fixed points the experiences of military history and ballistics. The last stands in so close a connection with the psychology of the fight that the endeavour to fathom the nature of tactics without both can only lead to a dull, purely mechanical result. During the past year ballistic bases have been created for certain tactical questions, which, in the future, no one who occupies himself scientifically with these questions can afford to ignore. It is the writing of Lieut.-General Rohne, "Das gefectsmässige Schiessen der Infanterie und Feldartillerie," which can also claim importance in the direction of practical teaching; for in the tactical training of infantry shooting suitable to service conditions must rightly play a great *rôle*,

and whoever directs it may learn many practical things from the above-named work. The second work is by the Italian General Massa, and it offers equally much valuable ballistical-tactical material, although it is specially based on the new Italian rifle ("La Fucileria colli Arme Nuove," 1896).

To revert to the discussion of a planned attack by infantry, in normal conditions, something like the following general points suggest themselves. The attack must be carefully prepared, and must never be engaged too hastily. Fighting out of hand will lead, in ninety cases out of a hundred, to serious disadvantages. The attack must be preceded by careful reconnaissance, so far as this is possible. This phase comes under the chapter "Führung," also under that of "Organisirung des Gefechts," and is of great importance to the further development of the action. Too much calmness and consideration cannot be demanded for this. If it be, according to Moltke, very difficult, often even impossible, in the domain of strategy, to rectify errors made in the first concentration of troops, this applies equally, tactically, to the assembly or engagement of large infantry masses.

It is frequently the custom to give the order for forming up before that for attack. This is not superfluous, if the formation be made sufficiently early from the deep columns of march into mass. In any case, by doing this the simultaneousness, the similarity, and with them the weight of the attack, will be promoted. The order for forming up has only to specify the points up to which the masses are to be moved, with a view to halting at them temporarily. These points must be situated out of the enemy's artillery fire. Then first begins the actual tactical reconnaissance, and, in connection with it, the orders are given for the engagement or attack. In doing this the hurry and flurry so frequently to be observed in peace should be altogether avoided; and calm, coolness, and circumspection are more than ever absolutely necessary, because, once the orders for attack have been given, changes of direction, movements of troops hither and thither, etc., can only lead to disadvantages. In this, as generally in war, it will, as a rule, lead to better results to carry through with energy a measure not altogether free from objections, than to change it subsequently.

In the deployment of the infantry masses into fighting formation, different views obtain as regards the distance from the enemy. Here and there it is taught that they must be as near as possible to the enemy. It stands to reason that for the execution of the attack it is more advantageous, both on technical and moral grounds, that the deployment shall be made as late as possible. In broken ground, cover from artillery and the distant fire of large bodies of infantry, as is usually employed in Russia, France, and Austria at these distances, may be available; but it is to be doubted if this will be the rule, having regard to the defenders, for whom an extensive, open field of fire is, and will continue to be, a fundamental requirement. It can, however, not be regarded as answering war conditions, if the attacker lays down ideal situations, so as to lessen the difficulties of the infantry attack. If it be one of the advantages of

the strategical offensive that it prescribes the law to the opponent, it is the reverse in the actual fight, that is to say, the attacker must in his tactical measures follow those of the defender. But this period is not always fairly considered, and so tactical representatives ensue favouring the attack, which appear to be more or less arbitrary.

From these considerations, it seems desirable to forego all illusions in the matter of the engagement and execution of the infantry attack, and always to keep in view the most difficult problem of attack, that on a prepared position, with an open field of fire up to the limit of effective artillery range (2,500 metres to 3,000 metres). Then follows the result, that the preparatory position for the infantry will in favourable cases be situated at this distance, and that from this distance must be practised rapid and secure deployment. In this first deployment is to be understood the fixing of the framework of the whole of the infantry to be employed in the attack, at least a division; if the approximately simultaneous advance of the infantry in the army corps can be attained, that would be the nearest approach to the ideal of an infantry attack.

The time for the organising of the most united advance practicable of the infantry is near; there can be no doubt of it, for the artillery engagement in modern battles occupies hours before the infantry is launched for the decisive advance. There is no lack of means for the organisation of an infantry attack in its broad outlines, provided the allotment of objectives, the indication of frontage down to individual battalions, the precise distribution of the several lines including approximate estimates of distances, detailing of the connecting troops, etc., have taken place previously. Even the existing advanced guard theory, now in practice, need form no hindrance to such a procedure, for according to this theory the advanced guard should cover the forming up of the troops to be employed, so that it must be possible for these to be organised for the purpose beforehand. The arguments also frequently advanced against the possibility of a "normal" arranged attack on a large scale, which are borrowed from the assumed rencontre-type of future battles, are not for the most part tenable, unless we are to accept tactical procedure by portions as normal.

Though it is not immaterial, at least for the tactical result, in what manner the first act, just described, of the employment of infantry in the battle is arranged, still greater tactical interest attaches to the following phase, viz., the advance of the infantry in the sphere of the enemy's fire. Here, so far as tactical peace training is concerned, there is practical unanimity as regards the one cardinal point, that an attack, once it has been launched, must be carried through with the utmost resolution until the charge with the bayonet. This principle appears sound, but more on the ground of training than from the probable character of the future battle, especially when one is of opinion that the next struggle will bring out unexpected scenes, and that a much greater *rôle* is reserved for the war of positions than is recognised by the tactics of the present, based generally on battles in the open field.

For the present, however, we have to do with the latter, so the

importance of a determined carrying through of the infantry attack can rightly be emphasised; also because the ideas in regard to the so-called tactical demonstration and tactical decision not seldom lead to some confusion as to the degree of energy to be displayed in the infantry attack. Here again it is detachment warfare that has to bear the chief blame, with its more or less strategic foundations, which allow of demonstration and manœuvre to a degree that is excluded from real war. In the latter, there is only one law and one mode of action: straight on and forward in the face of an enemy well covered and difficult to recognise! But it is in this that exists the difficulty of the problem, which many tacticians regard as a sphinx, whose secret will only be disclosed by the next war.

Others wish to lighten the solution of the problem by claiming the assistance of ground as an important factor for the attacker. Happily, there is here also a point of agreement for the different views, which is the nearly unanimous conviction (only the official Russian tactics are temporarily the exception) that the success of an infantry attack is dependent upon gaining a superiority of fire.

This is undoubtedly most easily obtained by concentric fire—it was for this reason Napoleon desired concentric fire, for he denied the decisive effect of frontal fire—which is synonymous with turning the defender. But in the majority of cases the infantry attack must renounce this means, for it is only given to a fragment of the attacking infantry to operate by concentric fire. In the battle of St. Privat-Gravelotte, the type of ordered battle, 3½ German army corps had to carry through a purely frontal fire action. In any case, no procedure of attack can be based on the possibility of flanking fire.

No alternative, then, will be available but to achieve superiority of fire by mechanical methods; a problem, therefore, exclusively of a technical nature, at least for tacticians, who can reckon only with equal factors (moral, training, armament).

By obtaining the superiority of fire is to be understood, tactically, the physical and moral shaking of the defender; or, to reduce it to a fixed formula, the attacker must, in the so-called decisive fire position, understand how to cause the defender such great losses that his moral courage will be annihilated, to follow Clausewitz.

How now can the attacker reach this decisive fire position, which, logically, is the preliminary condition to securing the superiority of fire and its tactical results?

Some tacticians make it quite simple, and say: The attacking infantry advances without stopping, after it has changed from the rendezvous formation to fighting formation, right up to the main position, regardless of losses; and here defeats by superior fire the defenders, who, through this fearless advance, have been thrown into a condition of moral depression. If this recipe were capable of being put into execution, it would imply an enormous simplification of infantry tactics, and it would no longer be necessary to puzzle over the best way in which to reach the main fire position. But if we examine war experiences, and the lessons of ballistics,

this procedure breaks out as pure review tactics, which in war may be reckoned to result in failure with almost mathematical certainty.

That a brave infantry should not fear losses, is so self-evident a proposition, that words need not be wasted on it, or on this other: that a so-called humanitarian tactical procedure is a chimera.

On the other hand, the object of the fight is tactical success, victory, and not the heroic consciousness of being honourably struck down. But a body of troops which advances continuously, even assuming loose formations, which will be forced upon them naturally, even at a long distance, up to the decisive fire position, will suffer on the way, according to the evidence of ballistics—such losses that they will no longer be in a condition to open an overpowering fire; for this, in the first place, is dependent on the number of rifles. And if the attacker does open fire from this position under such unfavourable conditions, there is no reasonable supposition that the defenders will be crushed.

The views in regard to the distance from the enemy of the main fire position vary from 700 metres to 400 metres; probably it is on the borders of close ranges, or from 500 metres to 600 metres. Rohne estimates that 100 men, allowing for errors in estimating the distance, firing at 700 metres at figure targets, make 44·3 hits in the minute, at 600 metres 63 hits, at 500 metres 100 hits. After reducing these results materially for service conditions, looking to the circumstance that the defenders will on an average open fire at 900 to 1,000 metres, and that consequently the attackers between this distance up to 600 metres or 500 metres (following the theory of continuous advance up to the main fire position) must move as targets, the smallness of the chances of an enemy after sustaining this fire gaining a superiority of fire from 500 or 600 metres is self-evident. If the attacker fills up losses, the defender can do the same. This filling up, however, must equally take place under the defender's fire, and even if the attacker should succeed finally in bringing a rifle into action to every metre of front in the main fire position, it will have cost him much greater sacrifices than the defender will have suffered; so that the latter will be able at the close of the action to rely upon much more material for repairing losses than the attack. On the ground of the production of these proofs an end must at last be made of proclaiming as a tactical precept the continuous advance up to the main fire position. The doctrine that the attacker from the outset must work with their skirmisher lines, which should be gradually thickened into a superior firing line in the main position, is similarly situated. It stands and falls with the proof as to whether the greater percentage of loss is to be looked for with the thin or with the thick skirmishing line. Rohne says:—"Let us imagine two equally long lines of skirmishers, lying down (head and shoulders targets), firing at one another at 500 metres distance. Their length may be taken as 80 metres. The one skirmisher line has the closest intervals permitted by the regulations—one pace per rifle, 0·80 metre—the other the widest permissible —two paces per rifle. The closely-formed skirmisher line will consequently have 100, the more openly formed line 50 rifles in the front line.

Assuming equal musketry training, both will make exactly the same number of hits, for the stronger line which fires double the number of shots will in the same time make only half as great a percentage of hits, because its target is only half as thick as that of the weaker line. If four shots a minute per rifle be assumed, 92 hits will be made in five minutes by each detachment. In the stronger detachment by the calculations given 60 per cent., therefore 60 figures will be hit; in the weaker, 84 per cent., or 42 figures. In spite of the greater losses, the stronger detachment will still have the advantage, for, after deducting the casualties, it will still have 40 rifles in action, the weaker detachment only 8. Whereas at the commencement of the action its superiority was as 4·1, it will now be 5·1 in favour of the thicker skirmisher line. "Sparring" tactics, which would operate at the outset with their skirmisher lines, is as little calculated to gain superiority of fire as are sharp tactics, which, seen clearly, are characterised by a continuous advance up to close distances.

It may, however, be remarked that in the first phase of the engagement, a chain of battle patrols in the form of a screen of skirmishers should be extended in front of the framework formed by the foremost line of the deployed troops. In the French infantry these battle patrols have been embodied by regulation in a fixed system (32 men per company led by an officer); but the utility of this measure is prejudiced by the excess of strength employed. As the French battalion in forming part of a larger formation always extends two entire companies for the advanced fighting line, there are 64 éclaireurs in front of it, and the reproach met with here and there of "éclaireurs gêneurs" is justified. A screen of skirmishers of moderate strength—8 to 12 per company—advancing 400 to 500 metres in front of the foremost fighting line, affords protection from surprise, facilitates reconnaissance, guards against premature development of the skirmishing line, and serves at the same time as the outline for this when its enemy has been approached sufficiently near to commence firing. By the restriction in numbers of these battle-patrols here indicated, the danger is avoided of their engaging in a kind of preliminary action before the actual skirmisher line has taken up its first fire station.

There are differences of opinion as to the manner in which the several infantry lines should be distributed from the first deployment until the first fire station is occupied, and how they should move forward. There are questions whether all close formations are to be avoided, and whether two ranks, rank entire, or opened-out single rank, etc., are to be employed. In view of the increased effect of fire, the tendency is more and more in favour of the loose least vulnerable formations, and it seems that the opened-out single line (therefore a kind of skirmisher line) has, on ballistic grounds, the most prospect of later general employment, even for the rearmost lines; tactical grounds favour it also, for by means of it the change to skirmisher formation, which sooner or later is inevitable, is facilitated.

As to the distance from the enemy of the first fire station, different

views also prevail, but there is a tendency to leave out of consideration, as tactically untenable, the plan of having only one fire station as near as possible to the enemy; equally it is not worth discussing the objection often raised that the choice of the first fire station depends upon the ground. An enemy who leaves, in the most complaisant manner, the choice of the ground to the attacker must be a rarity; in any case, no tactical system can be grounded on this supposition.

The views in regard to fire being opened by the attackers are very far apart. There are advocates of distant fire who would open fire at 1,600 metres, or certainly at 1,200 metres, and this is almost exclusively the case where volleys are to be employed at long ranges. On the contrary, it is held, and especially in Germany—and this results again from the fundamental preference for individual fire—that fire should be opened at the earliest from 1,000 to 800 metres. This principle seems tactically more correct, because in the first place it limits the expenditure of ammunition, it supports the energy of the endeavour to get forward, and sufficiently regards the physchological moment, in that the attacker under effective fire will also use his rifle.

Excepting in Russia, there is practical unanimity, that the advance from the first fire station to the main fire position must be carried out by rushes. Equally in regard to the advance by rushes of the advanced line being carried out in concert with the pushing forward of reinforcements; and, finally, there is agreement that the fighting line in the main fire position must be enabled to maintain the utmost possible fire effect by the sending up of ammunition and reinforcements.

If the attacker is numerically very superior to the defender, he will be able to turn him, or if he is supported by a more effective artillery fire, he may be in a position to break down by fire the enemy's power of resistance.

But if these factors are not in his favour, it will be very uncertain whether the attacker will be in a position to so break down the defender from the main fire position as to venture on the assault with any prospect of success. In proof of this it may be stated that, according to Rohne, out of 100 rounds with fixed sights—which should be the rule at short distances—at whole figure targets at 500, 400, and 300 metres, the hits were 31·7, 35·2, and 37·7, respectively; whereas, at head targets, there were only 5, 6·2, and 8·4 hits. Thus the superiority of the defender, who is lying down under cover (head targets), over the advancing attacker (whole figure targets), as regards the effect of fire, is increased from four to sixfold within the actual zone of the assault. The further consequences follow of themselves, if one is of the opinion that the attack with the bayonet must be carried out without firing.

At this point, however, we are met by differences of opinion. It has been stated that it is impossible to traverse at the double the distance from the main fire position of 600 to at least 450 metres; and we must agree, if we consider that the exhausted infantry soldier, burdened with about 30 kilogrammes, can with difficulty traverse this distance at all at the double, particularly in unfavourable conditions of ground. Further, it is

not practicable to renounce firing altogether during the assault, for that will only encourage the defender to further resistance. There is the necessity, then, for firing; the difficulty is, which of the methods proposed is the most suitable in service conditions. One is that a so-called fire guard should be formed; that is, a part of the firing line remains lying down and keeps the enemy under fire, while the other part carries out the assault. Others would adopt firing while in movement; not alone on ballistic grounds, but also on psychological grounds. Those, finally, who are opponents of firing while in movement, would have a final fire position in immediate proximity to the defender, to meet the eventuality of a revival of the defender's fire during the assault.

As regards the fire guard, in the main it protects the advancing troops only from neighbouring fire, but not from frontal fire; and the throwing themselves down again at from 200 to 300 metres from the enemy will in most cases be synonymous with the collapse of the energy of the attack. But, relatively speaking, the best method is that of firing in movement, only, be it observed, from assaulting distance; for its adoption at long ranges seems a tactical error, and it is attributable chiefly to this exaggeration that firing in movement frequently fell into discredit. Besides this, officers experienced in war are of opinion that during the assault the men will utilise fire on their own account, in which case it is much better to organise the matter in the peace training.

The following is a general summary of the infantry attack, as its procedure may be derived from what has been said in the preceding pages :—

The first deployment takes place from the preparatory position, according as the object and direction of the attack dictate. Broad fronts must be chosen for it, so that an immediate change to fighting formation (long skirmishing lines) may take place at a distance of from 1,800 to 1,600 metres from the enemy. Equally, the distribution in depth is so arranged that, generally speaking, the second and third lines have only to move straight on to be in a position to reinforce the advanced fighting line. The reserves remain massed in a suitable position until it is clear how and where they will be employed.

The advanced fighting line is to be made as strong as possible from the outset. It is preceded by a slender line of battle-patrols, which will halt at from 1,000 to 800 metres from the enemy, at which distance the skirmisher swarms that are following them open individual fire.

The further advance is conducted chiefly by rushes up to the main fire position, 600 to 500 metres from the enemy. The lines in rear follow at first, with at least 250 to 300 metres distance, in opened-out single ranks. They are intended to keep the advanced fighting line up to the greatest practicable strength, for otherwise it is impossible to secure the superiority of fire. In this a gradual diminution takes place of the distances between lines.

The actual assault follows—after superiority of fire has been gained—by a continuous movement, in which firing in movement appears applicable if the enemy opposes the attack.

views also prevail, but there is a tendency to leave out of consideration, as tactically untenable, the plan of having only one fire station as near as possible to the enemy; equally it is not worth discussing the objection often raised that the choice of the first fire station depends upon the ground. An enemy who leaves, in the most complaisant manner, the choice of the ground to the attacker must be a rarity; in any case, no tactical system can be grounded on this supposition.

The views in regard to fire being opened by the attackers are very far apart. There are advocates of distant fire who would open fire at 1,600 metres, or certainly at 1,200 metres, and this is almost exclusively the case where volleys are to be employed at long ranges. On the contrary, it is held, and especially in Germany—and this results again from the fundamental preference for individual fire—that fire should be opened at the earliest from 1,000 to 800 metres. This principle seems tactically more correct, because in the first place it limits the expenditure of ammunition, it supports the energy of the endeavour to get forward, and sufficiently regards the physchological moment, in that the attacker under effective fire will also use his rifle.

Excepting in Russia, there is practical unanimity, that the advance from the first fire station to the main fire position must be carried out by rushes. Equally in regard to the advance by rushes of the advanced line being carried out in concert with the pushing forward of reinforcements; and, finally, there is agreement that the fighting line in the main fire position must be enabled to maintain the utmost possible fire effect by the sending up of ammunition and reinforcements.

If the attacker is numerically very superior to the defender, he will be able to turn him, or if he is supported by a more effective artillery fire, he may be in a position to break down by fire the enemy's power of resistance.

But if these factors are not in his favour, it will be very uncertain whether the attacker will be in a position to so break down the defender from the main fire position as to venture on the assault with any prospect of success. In proof of this it may be stated that, according to Rohne, out of 100 rounds with fixed sights—which should be the rule at short distances—at whole figure targets at 500, 400, and 300 metres, the hits were 31·7, 35·2, and 37·7, respectively; whereas, at head targets, there were only 5, 6·2, and 8·4 hits. Thus the superiority of the defender, who is lying down under cover (head targets), over the advancing attacker (whole figure targets), as regards the effect of fire, is increased from four to sixfold within the actual zone of the assault. The further consequences follow of themselves, if one is of the opinion that the attack with the bayonet must be carried out without firing.

At this point, however, we are met by differences of opinion. It has been stated that it is impossible to traverse at the double the distance from the main fire position of 600 to at least 450 metres; and we must agree, if we consider that the exhausted infantry soldier, burdened with about 30 kilogrammes, can with difficulty traverse this distance at all at the double, particularly in unfavourable conditions of ground. Further, it is

not practicable to renounce firing altogether during the assault, for that will only encourage the defender to further resistance. There is the necessity, then, for firing; the difficulty is, which of the methods proposed is the most suitable in service conditions. One is that a so-called fire guard should be formed; that is, a part of the firing line remains lying down and keeps the enemy under fire, while the other part carries out the assault. Others would adopt firing while in movement; not alone on ballistic grounds, but also on psychological grounds. Those, finally, who are opponents of firing while in movement, would have a final fire position in immediate proximity to the defender, to meet the eventuality of a revival of the defender's fire during the assault.

As regards the fire guard, in the main it protects the advancing troops only from neighbouring fire, but not from frontal fire; and the throwing themselves down again at from 200 to 300 metres from the enemy will in most cases be synonymous with the collapse of the energy of the attack. But, relatively speaking, the best method is that of firing in movement, only, be it observed, from assaulting distance; for its adoption at long ranges seems a tactical error, and it is attributable chiefly to this exaggeration that firing in movement frequently fell into discredit. Besides this, officers experienced in war are of opinion that during the assault the men will utilise fire on their own account, in which case it is much better to organise the matter in the peace training.

The following is a general summary of the infantry attack, as its procedure may be derived from what has been said in the preceding pages:—

The first deployment takes place from the preparatory position, according as the object and direction of the attack dictate. Broad fronts must be chosen for it, so that an immediate change to fighting formation (long skirmishing lines) may take place at a distance of from 1,800 to 1,600 metres from the enemy. Equally, the distribution in depth is so arranged that, generally speaking, the second and third lines have only to move straight on to be in a position to reinforce the advanced fighting line. The reserves remain massed in a suitable position until it is clear how and where they will be employed.

The advanced fighting line is to be made as strong as possible from the outset. It is preceded by a slender line of battle-patrols, which will halt at from 1,000 to 800 metres from the enemy, at which distance the skirmisher swarms that are following them open individual fire.

The further advance is conducted chiefly by rushes up to the main fire position, 600 to 500 metres from the enemy. The lines in rear follow at first, with at least 250 to 300 metres distance, in opened-out single ranks. They are intended to keep the advanced fighting line up to the greatest practicable strength, for otherwise it is impossible to secure the superiority of fire. In this a gradual diminution takes place of the distances between lines.

The actual assault follows—after superiority of fire has been gained—by a continuous movement, in which firing in movement appears applicable if the enemy opposes the attack.

It stands to reason that, following the changing circumstances of the engagement, the infantry attack may take a different form. But it is wise only to fix in broad outlines a course of action for the tactical requirements of infantry in battle. The advantages in war of this are that it facilitates a definite method of peace training, and avoids uncertainty, and even waste of power, which can only act detrimentally, and affects the tactical confidence of officers and men. If, finally, it is left to every superior commander to adopt the technical, tactical methods he thinks best, by the change of commanders a continual change in this regard will be inevitable. The disadvantages of this for tactical instruction, and for a solid fighting organisation of the infantry, are evident. Such a course has nothing whatever to do with the restriction of the leader's independence and free action; both belong to the sphere of psychological training, whereas there is here only a technical question.

Further, the adoption of a fixed method of procedure facilitates the co-operation of the forces, and as a consequence the unity of their employment, which must be regarded as of great value, and spares the leaders of every rank much time and trouble by having to regulate during the actual fighting details of a technical nature.

The Employment of Cyclists in the French Army.

Special attention has been directed to the experiments that were made in France in 1896, as to the employment of cyclists for fighting purposes. There is nothing new in the use of cyclists for reconnaissance purposes—they are to be found in every Army; but great hesitation was experienced as to their value as fighting troops, as is usual in regard to most novelties in the military domain. As early, however, as 1895, Germany made an experiment on a small scale in one army corps during the manœuvres. The French military administration have taken the initiative, so far as having last year special cyclist detachments formed, which were exercised in different circumstances. Most attention was drawn to a cyclist company that was formed in the 87th Line infantry regiment, under the command of Captain Gérard, who was also the inventor of a collapsible bicycle, which has been reproduced in Germany.

During the divisional manœuvres, the company found a wide field of utility, in occupying important points in advance, or on one side of the main road of operation, in keeping defiles open, in securing the flanks, etc.; and all reports were unanimous in the opinion that it rendered important services to the troops it was attached to in securing favourable conditions in which to fight. This, from the tactical point of view, is of great importance.

That, in covering long distances, the cyclists can act more rapidly than the best cavalry, is noticeable, because cases can be imagined in which cyclist companies in front of their own cavalry may be of great tactical service, if utilised skilfully.

Once it had been proved in France that cyclists, with appropriate organisation, training, and leading, could be of value in certain cases as fighting troops, infantry gained a new means towards its tactical

independence, because security, reconnaissance, and the imparting of orders are combined with the fighting objectives; and now, outside the framework of the ordered battle, definite tasks can, in some circumstances, be successfully carried out by infantry without the assistance of cavalry.

Once the matter has been set going, no military administration can hesitate longer to promote it energetically. Of course, in doing so, exaggeration must be avoided, for the best organised cyclist formations will never be in a position to take the place of good cavalry; but both infantry tactics, as well as those of cavalry, will very soon have to reckon with this new body of troops. There seems no doubt that minor tactics will in future be materially influenced by them.

In France it was proposed to form, provisionally, 25 "compagnies cyclistes militaires," one for each army corps and each permanent cavalry division, which would in the event of war produce about 6,000 combatant cyclists. The more solidly such formations can be organised in peace, the greater will be their tactical employment in war; for attention must be directed again and again to the fact that, looking to the competition now prevailing in all military matters, in everything that affects tactical efficiency, the peace organisation, both as a whole and in detail, must prepare this effectively beforehand.

In Belgium, also, the military cycle service is already organised. There used to be a school of "Vélocipédie" attached to the carbineer regiment, but it has now been broken up. In its place, one cyclist company has been formed in each of the four battalions of this regiment. According to official instructions these companies are not only intended to form a certain number of orderlies for the field troops, but also are to co-operate with the cavalry in reconnaissance work, and form a support to them on occasion. Here also, then, we see a mounted infantry, which apparently has a future.

Alterations in the Field-service Regulations in Austria-Hungary.

During the past year a new and in part revised edition of the second part of the service regulations has been brought out, relating to duties in the field. The alterations are not for the most part material; but there is a new paragraph relating to outposts that appears disputable. It runs thus:—"The outposts must take up such a position that all the lines of approach open to the enemy which lead to the cantonments or camps of the troops and trains are covered in so far as the independent security by individual groups of the main body of the troops in these directions does not suffice."

In certain circumstances this may lead to an excessive expenditure of measures of security, and, at least, for the infantry this must be protested against, because a scattering of the forces will thus be inevitable, apart from it being a useless expenditure of power. Both can only reduce the tactical readiness of the infantry to fight, and if in many of the peace outpost exercises the mechanical element prevails in the form

of an endeavour to produce a prettily formed line of outposts which is to cover everything, this is done at the cost of the tactical element, and is hardly suited to service conditions. The infantry of the outposts must always be ready to fight, and consequently it must be concentrated. It is, therefore, much sounder to ask how weak the outposts can be than how strong they can be, when considering the provision of infantry for the advanced outpost line.

The German "Felddienst-Ordnung" supports this view by the following paragraph :—

"By day, and still more by night, the movement of troops, when not actually engaged, is restricted practically to the roads. It is, therefore, of advantage to occupy those roads that lead from the enemy. Once we have taken possession of these, the more considerable undertakings of the enemy cannot escape us, smaller movements near the roads will disturb the outposts, but they will not endanger the main body."

It is not, therefore, necessary to occupy every field road leading in the direction of the enemy with infantry or even with fixed cavalry posts. Very few outpost companies then, but in their place by day many cyclists, and by night so-called "Cossack posts" towards the enemy, so that the infantry may be able to economise its forces, for it is in the field to fight and only exceptionally for purposes of security.

New Infantry Drill Regulations in Russia.

After diverse and partly very lively discussions in the military Press, in which officers of all ranks participated with great freedom, provisional draft regulations have been framed, which are to be practically tested during the present summer by the 1st Infantry Division in camp at Smolensk.

They are characterised by the number of drill exercises being materially cut down, the formations in column restricted, looser, more handy formations favoured, and the entire fighting mechanism of a battalion simplified by its fundamental division in two parts (after the French pattern), the fighting line and the reserve. All these modifications are demanded by modern tactics, and only in one point do the Russian provisional regulations depart materially from their requirements, and in this a kind of national tactics seem to have taken their place ; this is in the manner in which superiority of fire is to be obtained. There will be an opportunity of returning to this point in the following sketch of the mode of attack of an infantry regiment as prescribed by the draft, for, in testing it practically, the infantry of the 1st Infantry Division was formed mostly as one regiment on war strength, so as to obtain the nearest approximation possible to service conditions.

As soon as the enemy's position was recognised, the regiment deployed at a long distance, so as not to offer a favourable target to the hostile artillery, and commenced its advance. The development of the skirmisher line took place generally so far as from 2,000 to 1,800 metres of the enemy, and was formed by two complete companies per

battalion. The preference is given to this system from the following considerations of a psychological nature: firstly, because the company reserve after exposure to fire is not fitted to afford efficient support to the skirmisher line; secondly, because the energy and watchfulness of the company commander is divided; thirdly, because it is most desirable that from the outset at least half the number of rifles available should be brought to bear (formerly 25 per cent. was the proportion provided, whereas now it is 50 per cent.); and fourthly, because the battalion commander has for the time two companies in hand, whereas by the system of "petits paquets" he could, perhaps, dispose of one intact company, though generally he had only the supports left, which were really no good to him, for they were under the company commander in front.

The one really valid objection to the system of the whole of a company being extended, seems to be that in the further course of the engagement it will be impossible to avoid different companies becoming mixed up. The experiences of military history show, however, that in a pitched battle this cannot be prevented (it happened even at the battle of Mollwitz), and it should besides be a matter of indifference to well-trained troops whether men of a battalion or of a regiment have to fight mixed up together; and so long as the principle is maintained of entire regiments fighting side by side, the case of the men of different regiments being mixed should be of rare occurrence. It is not possible to prevent order being lost, and these mixed-up bodies are regarded by many superior officers as disordered crowds; but there is no doubt that organised disorder, so far as it can be practised in peace, is, after all, better than disorganised order. For order, in the mechanical sense of peace habitude, cannot be maintained in war; and, unless organised disorder is practised during peace, there will in war be no other alternative but tactical disorganisation.

The forward movement of the rearward lines was conducted in line; preferably, though, in formations with small heads (file formations). The whole—skirmisher line and reserve lines—moved at a walk. The double is only to be resorted to exceptionally, to cross very exposed ground. The advance by rushes is neglected as a rule, for from the first fire station, at a distance from about 1,200 metres, to the last fire station, at about 500 to 450 metres from the enemy, the advance of the skirmisher line is continuous at a walk. In the meantime, the rearward lines have diminished their distances, deployed from narrow formations into broad ones, and approached to a distance of 150 metres to 100 metres from the line in front of them. The enemy is stormed from the last fire position, with an accompaniment of magazine fire, and at 50 metres from the enemy the men cheer. In principle, the so-called "penetrating attack" is used here; that is, the whole of the lines of both parties must pass over each other. These "penetrating attacks" are a speciality of the Russian Army—they are practised also between cavalry and infantry; their object is to obtain the energy of the assault, even in peace. The tendency in itself can be understood; but a cool opponent, who knows

how to use his rifle, would give little opportunity to an infantry that expected decisive results from a "penetrating attack."

It is only the draft of the new regulations that has been dealt with, and the issue of these in their ultimate form must be awaited before a final judgment can be made. But in the meantime it is of great interest to recognise in the draft the main lines on which tactical thought in military circles is moving in Russia. This knowledge is supported by reading the various articles written from different points of view sometimes, in the *Voiénnii Sbórnik*, all of which are occupied with the method of attack. The impression observable in them is that the Russian infantry should look for their salvation to the bayonet, and it seems often as if the rifle were regarded as a kind of useless evil; whereas at the present day tactics must really be based on the rifle, and not on the bayonet.

If, then, doubts must arise regarding many important questions in the tactical procedure which seems to be in course of creation in Russia, on the other hand, the appreciation of modern requirements appears to have been given its just value in the tactical formations and organisation.

The Action of the Combined Arms.

This subject can only be discussed from the point of view of service conditions if the framework of battle be adhered to. The tactics of detachments have no place here; they belong rather to the category "Kleiner Krieg." and not to that of the tactics of the three arms.

Further, the service of strategical reconnaissance, even assuming artillery and infantry to co-operate, is exclusively a matter of higher tactics of cavalry, for its capability of action and fighting power are sufficient here.

In protecting the march and in outpost duties the main point is always the appropriate employment of the cavalry, particularly now that by its capability of fighting on foot, and by its future combination with cyclist companies, cavalry possesses a high degree of tactical independence. At present it cannot be foreseen whether the further development of the military cycle service will increase the independence of the cavalry more than that of the infantry.

On the other hand, it must be concluded that in actual battle tactics, the action of cavalry will be relegated more and more into the background. Neither peace representations nor the efforts of the cavalry itself only to abandon step by step the ground on which its action was in part decisive, can alter much in this irresistible development. But there still remains plenty of scope for an enterprising cavalry, apart from the services of information and security, in fighting the enemy's cavalry, and—theoretically, at least—in the pursuit of a defeated enemy. Military history has, in any case, had little to record during the last 50 years of this last kind of operation.

Infantry and artillery have gained the more in their powers of destruction, and in this lies the fundamental element of all military action in war. Since, however, cavalry is constrained by the force of circumstances

to employ its firearm more and more, it renounces in a certain sense its independent tactics, for when fighting on foot it must employ infantry tactics. Its tactics are, therefore, now of a mixed nature, according as it fights mounted or on foot; whereas infantry and artillery have only one method of fighting. To this must be added that infantry has become more and more a distant arm—for infantry fire is now employed at distances formerly reserved for the artillery—and consequently it has got to have still more points in common with the artillery.

From these considerations the conclusion may be drawn that the tactics of the combined arms are still in a state of transition, and that it is not proposed to speak here *ex cathedrâ*. This applies especially to higher tactics, and this view is also taken in general in Lieutenant-General Freiherr von der Goltz's valuable work "Kriegführung."

Besides von der Goltz's studies, it is of interest to know the views of General Lewal, who, going beyond the usual programme of tactical considerations, discusses thoroughly night operations and battles of several days' duration. He holds the view that, in future, both will play a much greater *rôle* than is usually attributed to them. By night operations on a large scale, he means chiefly the moving up and placing in readiness of large masses of troops during the night, so as to attack at dawn. "The whole question is of great importance; the effect of fire nowadays is constantly increasing; in some cases it may be so great an obstacle, as to be only surmounted by darkness. Operating, therefore, by night cannot at times be avoided, and such operations must become more frequent the greater the progress made with the perfection of firearms."

The General wishes, therefore, to include such operations on a large scale in the peace training, and as regards the artillery he refers to the following paragraph of the German field artillery regulations:—"The difficulty of unlimbering in open ground under the enemy's fire may lead to darkness being utilised. In this case the border of the enemy's fire zone is approached the previous day, and the batteries are taken up, under cover of night, to the position chosen and if possible prepared, in order to begin the engagement at daybreak."

A similar procedure is advocated for the infantry, in which cases surprise and a determined advance must answer best. It may be observed that in Germany experiments have been made with cavalry masses operating by night by surprise, and that in Russia attempts have been made to reduce night operations to certain formulæ. In such undertakings mass tactics are especially recommended, which in operations by day are a thing of the past.

As regards the battles of several days' duration, they are difficult to separate from position warfare. Here also the usual methods of employment of the three arms would have in fact to find their way into new channels. The General says quite justly:—"The battle of the future will then assume certain characteristics of fortress warfare, and endeavours will be made to increase the destructive powers of artillery. Work must

be done during the night, but without over-exerting the men, for they must be held ready to resume the fight as soon as day breaks."

Should war be really of this nature in the future—and the probability of it being the case is increased from the fact that modern Armies occupy much less time to seek one another out and more time in fighting—the action of field artillery in combination with heavy batteries will become almost decisive, and the infantry will frequently have to adapt its action to that of the artillery in place of the reverse, which is the present arrangement.

The question of the degree of independence of leaders has a certain connection with that of the united and simultaneous co-operation of the forces in action. It appears to be in the nature of things that there is great danger in the one-sided accentuation of independence, especially when the three arms are engaged. If a cavalry leader under the formula of "independent" under all circumstances—and for the cavalry undoubtedly this qualification is of the utmost importance—were to undertake an independent cavalry action, without carefully weighing the small chances of success for his arm against artillery and infantry, such as was attempted, for example, on the 18th August, 1870, on the right flank of the German line of battle, such an excess in the employment of cavalry outside the general framework of battle, would have exactly the same failure as then.

The independence, therefore, in a battle of the several arms is very restricted; they are there much more dependent on one another than becomes apparent in peace exercises. This applies equally to the artillery, which is not so independent of infantry support as is often represented. The 18th August, 1870, is also an example of this, which is well worth attention, so far as regards the independent action of the artillery of the 9th Army Corps; and in further reference to this battle, the premature engagement of the Prussian Guards may be cited, premature as regards its connection with the general tactical situation. The intention was to carry through an independent infantry action without sufficient previous tactical use of the artillery.

It was pointed out in 1894 that a strong feeling was arising against the employment of large advanced guards, on the ground that their *rôle* was rather to observe and reconnoitre than to fight; and that with strong advanced guards composed of all arms, there was the danger they may become engaged in independent actions that will prejudice the unity of the operations of the whole. It is suggested, therefore, that advanced guards should be weak in infantry, have no artillery at all, and be strong in cavalry, and eventually provided with cyclist companies.

Apparently the composition of advanced guards is a point in which modern teaching is inclined to depart from the principle of a mixture of the arms as a basis. It seems evident that looking to its actual arms and training, cavalry can in some circumstances dispense even with infantry in the duties of advanced guards, especially if they should be furnished with cyclist companies. The advocates of strong advanced guards point out that they have to cover the deployment of the main body, and must

consequently have a certain fighting power, including artillery. If this were strictly so, there would be much in their favour, but experience has shown that the main body is easily led into directing its deployment so as to meet the fighting requirements of the engaged advanced guard. It is then all over with a united deployment and the employment of the entire force with a great object in view.

It is argued on the other hand, that the deployment of the main body, by which must be understood the mass of infantry, must before everything be covered by the artillery. But where can the artillery take up its position, if the advanced guard is already engaged in front of it? It would be obliged to take up its first position in the line occupied by the advanced guard, and it must be doubted whether this would be of advantage for the later formation of the main fighting front. If, however, no regard had to be paid to the action of the advanced guard, the first placing of the artillery could be carried out compactly and smoothly within the framework of the whole.

There are no differences in the opinion that the introduction of the artillery combat consists from the outset in tactical dispositions that will ensure concentration of fire, and the independent fighting power of the artillery is frequently held not to require an immediate protection by the other arms. Especially in those Armies in which the artillerymen are equipped with a rifle, it is maintained that infantry support is only required in the later stages of the action, when the enemy's infantry masses advance to the attack.

Similar unanimity almost exists that, in general, artillery will open fire at a range of about 2,500 metres, and at first will direct the whole of its efforts to overpowering the enemy's artillery; also that the whole battle tactics of artillery must never be a thing for itself, but it should always keep in view its main object, which is to prepare the way for the decisive attack of the infantry. Thanks to its numerical, technical, and ballistical superiority, this programme was in most cases carried out by the German artillery in the Franco-German war. It did not succeed before Plevna. Looking to the present high standard of capacity of all artillery, it is open to doubt whether it will be possible to carry it out in future with similar precision.

The infantry attack is undoubtedly the most difficult of all tactical problems. It seems indeed to many incapable of solution, if the infantry attack has to be carried through under artillery fire, and during a long space, for it begins to tell at 2,500 metres, and becomes more and more effective up to from 1,200 to 1,000 metres, without any protection from it being available. This is a long and bloody way, which was formerly unknown. The attempt is made to make the solution of the problem easier by simply eliminating the fire of the artillery as the disturbing element of the equation. The hostile artillery is overpowered, and then the infantry attack has only to deal with hostile infantry fire. But if we do not succeed in silencing the enemy's artillery? The attacker cannot still withhold the infantry attack; it must be engaged and carried out. The attacker may even fall into the position of having to let his infantry

go, in order to avoid the reverse proposition of his own artillery being overpowered by that of the enemy, or of abandoning the infantry engagement as purposeless.

These are no idle questions, but in books on tactics, as well as in the regulations, the precise answer is faulty, for everywhere the sentence is: "The artillery crushes the hostile artillery, it then directs its fire upon the infantry, which it regards thenceforth as its chief target." The same tactical axiom is applicable to the artillery of the defenders. On close examination, however, it will appear that however applicable theoretically these tactical requirements may be, as regards the artillery, in the opinion of the writer a system of battle tactics cannot be based on it, because the main factor, the overpowering of the artillery, is so uncertain.

It must be considered whether a return should not be made to the old tactical practice, and, without prejudice to respect for the increased importance of artillery, to make the main tactical event of the battle—the advance of the infantry—more independent of the co-operation of artillery; while at the same time shaping the tactical procedure of the principal arm, so as finally to promise success in spite of the defender's artillery fire. The old tactics had also to count in the infantry attack with the enemy's case fire, which had been invented with the sole object of being used against infantry. This case fire had to be surmounted up to the closest distances, and no one thought the infantry could not succeed because it had to advance under this fire. The analogy speaks for itself. Only the procedure must not be based on the advance of columns of assault, but on suitably arranged swarms of skirmishers; in any case, such a system of tactics would have the advantage of not having to stand or fall according to the constantly uncertain success of the artillery duel.

We may think over these questions as much as we like; the fact remains that under all circumstances nowadays the artillery line forms the outline of the fighting front—the skeleton of the battle. The necessity then arises, if only from this fact, for every tactician—and this term includes every superior officer—being thoroughly instructed in regard to the procedure in battle, and the ballistic capabilities of artillery. This will better promote the proper appreciation of the working together of the several arms than many axioms, that appear only to exist for the purpose of preventing unprejudiced consideration.

Naturally, the infantry must see to the security of the artillery from hostile infantry fire in the later stages of the engagement. According to General Rohne, a line of skirmishers pushed forward to about 400 to 500 metres in front of the batteries will be sufficient.

Opinions differ as to whether the artillery of the attacker should take up one position only, not too far from the enemy, or change from one to another. There is unanimity of opinion that the artillery of an infantry that is advancing victoriously should second its efforts by advancing rapidly and energetically from one position to another.

The tactical conduct of the defence is incomparably simpler, both as regards the artillery and the infantry. Here there is in the main only one position; and the defence is, even without great advantages of ground,

so favourably situated both technically and ballistically, that it can do with the simplest tactical means in the main fighting front. Here all the measures taken cannot be sufficiently simple. For a normal defence, the principle is applicable that the available artillery should come into action from the outset, but only to engage the infantry when hostile infantry is in sight. It seems to stand to reason that strong reserves should be formed separately by the defender, and that his cavalry will be on the flanks. It is equally a matter of reason that the defender should never be passive, but always have in view a counter-offensive.

There can be no doubt the defence has increased in power, and it may happen perhaps in the future that a commander, not led away by the international doctrine of the unqualified benefit of the tactical offensive, may know how to reap the tactical advantages of this fact. He would then occupy his front comparatively weakly while skilfully preparing it, and when the enemy had suffered in frontal attacks, would advance with superior forces from a flank before the attacker's turning movements have become effective. It is undoubtedly a problem of the first rank, but its solution must not be declared impossible because the tactical tendency of the present day favours the offensive. These are good grounds only for the strategical offensive; there are some good grounds for the tactical offensive, but they are not sufficiently conclusive to allow of the advantages of a skilful tactical defensive being relegated into the background, because this is nowadays good tactical style.

The justness of the tactical principle generally laid down, that the defender should be placed with a narrow front, or as far as possible massed, may be doubted, on the grounds that the defender must avoid a deep formation, and must on the contrary occupy as wide a front as practicable, so as to make a turning movement by the attacker difficult. It appears to be sound, that a defender disposed in depth will be easier to turn than if he occupied an extended front. And if the defender in deep formation once falls under concentrated fire, his deployment will come too late.

It remains to consider the task that falls to cavalry tactically in the battle. The books of instruction say that it watches the suitable moment to act, not only on the flanks, but the so-called divisional cavalry even in the midst of the actual line of battle.

As regards the execution of these instructions, this, in the opinion of many tacticians, will become more and more difficult. Here and there it is taught that cavalry should be freed altogether from intervention in the artillery and infantry engagement. What is thought is, that the tactical *rôle* allotted to cavalry can, from the nature of modern fighting, be only carried out in exceptional cases; but that a well-led cavalry will be able to take its place in war, even though unable to fulfil the expectations formed of it in regard to battle tactics.

Cavalry Tactics.

Now that the Russian cavalry have received new regulations, the cavalries of the Great Powers of Europe have once more become as

similar in regard to tactical formations as it is possible to make them. Were it not that the distribution of regiments into squadrons (4 and 6) is different, an almost complete agreement would be reached.

The judgments also regarding the arm on the battle-field and its employment in masses are in agreement, only apparently Germany cannot decide to give effect to them by the organisation of permanent cavalry divisions in peace, as has long become a habitude in other places.

At the annual exercises battle tactics continue to play the principal *rôle* in all countries; the necessity for maintaining this cannot be gainsaid. But it appears only the more, time to give its due to the services of information on a large scale. This is particularly the case in Germany, for her opponents have always been equal on the battle-field, so that superiority must be sought in other directions. In this the hitherto somewhat neglected question of screening will be gone into more closely, and hand and hand with it system imparted into forwarding back reports.

The employment of cyclists with cavalry continues to make progress.

The question of armament has not entered a new stage. The German cavalry have not given up the lance, whereas France and Russia hold on to the sword. In France opinions still differ. They do not like the German lance, and would like to do something to meet it; but are doubtful as to the possibility of placing this arm in the hands of all the French cavalry. To enable this to be done heavier recruits would have to be got for the cavalry, which would necessitate again their being mounted on heavier horses.

The new German cavalry regulations of the 16th September, 1895, have gone through their first drill year. The troops have been able to test them during a drill period and during the autumn exercises, and this test has gone off well.

The new Russian cavalry regulations show progress in every branch of training. The wish urged in former years in the Press to restore to the Cossacks their national mode of fighting has not been regarded in the regulations, which may be taken as definitely settling the question. The *láva* is left to them, but they must ride in close order; and firing in the *láva*, as understood by the Cossack swarms, is not provided for. The conclusion has then apparently been drawn from the experiences of latter years, that only a Regular cavalry is of importance on the battle-fields of central Europe, and also that the Cossacks can keep pace with the training of the Line.

Field Artillery Tactics.

The previous year's Report commenced with the remark that there were, in the main, three questions, which for some years past had been under discussion. The first referred to the organic separation of a corps artillery, or the distribution of the whole of the artillery amongst the infantry divisions. This question has not been advanced in any way during the past year. It is referred to now only to correct a printer's

error. In the previous Report the sentence ran:—"The grounds for it" (viz., for the distribution of the whole of the artillery to the infantry divisions) "are not apparent." Whereas it should have been "New . . . grounds are not apparent." As is evident from the previous Report referred to, the writer is an advocate for the distribution of all the artillery amongst the infantry divisions.

In the question regarding the future armament of the field artillery, which now as then occupies most interest, views have become more clear. It may remain undecided whether the circumstance that Russia has come to a decision on this important question, by electing for the increased effect of the single shot, has been of decisive importance. It is a fact, that the predilection for the light but quick-firing gun has retrograded still further; and that, so far as the Press has rightly gauged opinions, the gun with greater effect from its single shot is preferred. Even in France, whence the inspiration came for the small calibre quick-firing gun, a complete change of view has taken place. In the periodicals warning is given against precipitation, and the more powerful gun advocated; indeed, frequently the opposite fault is noticeable, and guns demanded that will fire much heavier projectiles than those now in use.

The writer continues to hold the opinion that in the present state of technical knowledge, the gun of the future should have a calibre of from 7·7 to 8 centimetres, and a shot of 7 kilogrammes, with an initial velocity of about 500 metres. The shrapnel should have the chamber in the base, and contain from 280 to 300 bullets. Such a gun would ensure a materially greater effect for the single shot than the existing gun, besides having increased mobility, and especially rapidity of fire.

The course taken during the past five years in the question of the field gun of the future, shows how necessary it is that the artilleryman who would come to a decision on the point, should not only be a tactician but also versed in ballistics, otherwise he may very easily get astray.

In close connection with the question of the future armament of the field artillery, is that of the future organisation of this arm, especially as regards the strength and composition of the batteries, which has been actively discussed during the past year. Starting with the assumption that the effect of the new field gun will be at best as great as the existing gun, and very probably superior to it, and that the rate of firing with the single gun will be about twice as great, the question was discussed in the *Militär-Wochenblatt*, what should be the strength of batteries on the introduction of such a gun, in order to employ its inherent qualities to the best advantage. (*Militär-Wochenblatt*, No. 13,1896, "Ought the field batteries in the future to be formed of six or of four guns?") It was pointed out, that a battery composed of four quick-firing guns would produce the same effect in battery fire as a battery of six guns; for in battery fire, which is, and will continue to be, the rule for the artillery action, the six-gun battery cannot fire more rapidly than the battery of four guns. The reduction, however, of the number of guns from six to four would have many advantages: shortening of the columns of march, diminution of

breadth of front of the fire line, easier control of fire, and better training of the war batteries, from which it is inferred that the war battery of four guns would have even a greater effect than one of six guns, under the condition of course that battery fire is employed. With magazine fire, the battery of six guns will naturally have the greater effect; but with the ranges ordinarily employed, there can be no question of this, for the control of fire would get quite out of hand. As a disadvantage of the smaller strength, it was pointed out that losses would be felt more. With the same intervals between guns, the smaller battery, in similar conditions, will suffer fewer casualties than the larger one; but proportionately the losses, and with them the loss of fighting power will be greater.

The still burning question of the bombardment by the artillery of objectives situated under cover was much discussed during the past year. The *Revue d'Artillerie*, in an article styled "État actuel de l'armement des artilleries de campagne étrangères en pièce à tir courbe et obus brisants," summarises the actual situation as follows:—

1. A field howitzer or mortar has been introduced in France and Russia, and is under trial in England, Italy, Spain, Bulgaria, Turkey, and the United States of America. In Germany, Austria, Belgium, and Switzerland, it is intended to employ heavy guns belonging to the siege artillery for the purposes of the field army.
2. A high-explosive shell with thick walls and comparatively weak charge and time fuse has been introduced in Germany and Austria.
3. A high-explosive shell with thin walls and the heaviest charge practicable, with percussion fuse only, in France.

BETWEEN THE CHIESE AND ADIGE.

[REMINISCENCES AND NOTES.]

Translated from the "Rivista Militare Italiana" of Sept. 1st. 1897, by Colonel C. NEEDHAM, Military Attaché in Rome.

IN the military library at Rome there are some maps of historical interest. They include the country lying between the rivers Chiese and Adige, and recall manœuvres carried out in that district between the forties and fifties, by the Austrian Army of occupation under Marshal Radetzky.

They (the maps) were given to some of the Marshal's intimate friends—according to traditions, to General Bava, but more probably to Saluzze, chief of the Piedmontese staff, and perhaps to some still more distinguished persons.

On these carefully-coloured maps may be seen indications of the manœuvres performed by the Army over a country in which, sooner or later, it appeared evident that Army would have to dispute the possession of Italy with some enemy as yet unknown. A few notes are attached to the plans, which explain, in German, in some cases in French, the dates and progress of the manœuvres, as though they described a theatrical display.

The districts vary, but the order of operations is always: A Western Army (French, or Piedmontese, or imaginary—the notes do not say) advances to attack an Eastern Army (naturally Austrian). The struggle takes place beyond the Mincio, or between the Mincio and the Chiese, in different years. After four days' fighting, the Army invariably retires to the camp at Montichiari, and there is a grand review, movements of long lines of infantry in their white uniforms, brilliant charges by hussars with flying dolmans, by Uhlans with red shakos and long horsehair plumes, to the noisy accompaniment of masses of artillery. A regular fantasia, which astonished the civilians, and was much admired by the military spectators. From the hill of Montichiari, apparently created by Nature for the purpose, Austrian and foreign generals watched the incidents of this military pageant, which recalled to the mind those of Frederick II. Around them, the more zealous and intelligent officers strove to acquire professional knowledge. Many of them became famous in the history of the Austrian Empire from 1848 onwards. The old Marshal Radetzky, the centre of that group of brilliant uniforms, if he had not acquired the renown gained by the easy victories of 1848-49,

could boast of useful counsel given by him in the last war with Napoleon, of the confidence of his Government, and of the affection of the officers and men of the Army of occupation. That day did not end the grand manœuvres. After a day, nominally of rest, but really devoted to the cleaning of tunics, to the polishing of arms, and to every means possible to improve the appearance of the troops, came the final parade, with the inevitable march-past. Thus closed a laborious week, with the compensation of having earned the unqualified praise of all the military profession in Europe.

The manœuvres were accomplished on a carefully prepared plan: each day had its object, and each day there were two or three decisive phases through which the movements of the troops must pass. The victory and defeat were pre-arranged. Some doubt may exist as to the tactical and strategic value of these operations; but the constant repetition of them, with the same object always in view, must undeniably have been of practical value to the Army of occupation. They strengthened those bonds of good-fellowship, and harmony of thought, which have been happily described as as "the discipline of hearts and minds," and made of the Army a coherent force, which was a sure instrument of victory in the hands of Radetzky, who had trained it with such care and patience. Besides which, the manœuvres so constantly repeated between the Chiese and the Adige, generated the idea that this territory was the key of the Austrian dominion in Italy. Every fold of the ground was carefully studied, and it was this study that inspired the Army with the marvellous powers it displayed in the three wars of 1848, 1859, and 1866, and imbued it with the capability of minimising the results of a defeat, and of rendering a victory decisive. It is doubtless due to the laborious care which brought about these results, rather than to his strategical or tactical intelligence, that Radetzky owes his fame in military history, and the boast of having rendered an inestimable service to his Sovereign and to the Imperial power of Austria.

And the sagacious Marshal was well aware of the value of his work. One of the maps refers to the manœuvres of 1842, the very year when Marshal Radetzky came to Turin, and there were grand *fêtes* and a tournament to celebrate the wedding of Victor Emanuel, the future King of Italy. Notes explaining the manœuvres are attached to the map, and appear to be prompted by sinister forebodings. The Eastern Army, having been defeated, is compelled to evacuate the whole of Lombardy, it has crossed the Mincio, and has to concentrate under the walls of Verona to await reinforcements. The enemy has pursued it; is master of Peschiera, and is besieging Mantua, but is forced to halt, powerless for want of reinforcements from the Ticino. At this point the manœuvres commence, and victory rewarded the efforts of the Eastern Army. Never was the future described with such prophetic accuracy. The ideas of 1842, scarcely suitable for manœuvre work, were developed with marvellous precision, when the Austrian Army in Italy, unexpectedly surprised by insurrections in the different towns where it had garrisons, was forced to take refuge between Verona and Mantua. Perhaps the

idea itself was suggested by some concatenation of incidents which vaguely outlined the possibility of a great struggle for national independence ; one of those presentiments that often precede great social upheavals. But in the saddest days of 1848, there must have been a gleam of hope among Radetzky's officers that the struggle would end as successfully for them, as it did in the manœuvres of 1842, of which it appeared to be the effective realisation.

The general importance of the positions between the Adige and the Chiese was as promptly recognised by the Austrians as by their adversaries. But the separate value of each position and its importance during a war, were more slowly realised and studied. As in mechanics we can imagine the whole force of a machine concentrated on one point, so in war the importance of a vast territory with regard to the point of impact and victory may be localised in a tolerably limited but strongly marked portion of that territory. Ignorance or misconception of its importance may easily be the cause of defeat.

The basis of Austrian dominion in Italy was essentially the hilly country surrounding the south of Lake Garda, where Radetzky's manœuvres were carried out. This was the stronghold of the Army of occupation in Italy, the tie which bound its possessions to the Austrian monarchy. Mantua was a formidable element in war, but its mission was to extend Austrian influence in the peninsula, beyond the Po. This very simple fact was realised by Napoleon, but it was only after 1848 that it was impressed on the minds of the Austrian Government. The gigantic works of fortification that were undertaken during the next ten years, and led to the formation of the famous Quadrilateral, were the results of this revelation. The fact that the Italians did not understand it resulted in serious losses between 1848 and 1866.

The Italian policy of the Cabinet of Vienna was first shown at the beginning of the eighteenth century in the Spanish War of Succession. At that time the Austrian Hapsburgs were anxious to appropriate the entire inheritance of the extinct branch of the Hapsburgs of Spain. Unable to take the whole, from the opposition of Louis XIV., they concentrated their efforts on the Italian peninsula, without neglecting other matters. The succession of the Spanish dominion in Italy added to the hereditary States the Dukedom of Milan, between the Sesia and the Adda, the Kingdoms of Naples and Sicily, and in the centres of the peninsula the so-called garrisons of Orbetello and S. Stefano, good centres for controlling the Grand Dukes of Tuscany, and the Papal Sovereign of the States of the Church. But it was no easy matter to carry out these ambitious projects, and from the efforts of Louis XIV. to place his grandson on the throne at Madrid arose that struggle for preponderance in Western Europe, which the two nations on the banks of the Rhine have been disputing for ages. In the Italian peninsula the contest might take place in the Dukedom of Milan, or in the south, or even be carried on in both regions at the same time. But the course of an invading French Army that came from the Western Alps across Piedmont, and that of an Austrian Army from the Tyrol must meet in the territory

between the Chiese and the Adige, and there the first struggle must take place. But where? The territory was then politically divided between the Republic of Venice and the princely family of Gonzagas. A diagonal line between Votta and Ostiglia roughly outlined the boundary. The hilly portion belonged to the Venetians, the plains to the Gonzagas, and they had the control of Mantua.

The territorial expansion of the Venetian Republic necessitated guarding the safety of the commercial roads that led through the Alps to central Europe. Between the fourteenth and fifteenth centuries the Venetians waged a war of extermination against the petty chieftains, who were ever rising in rebellion along the foot-hills of the Alps, taking advantage of the cover afforded by the valleys, and raiding the caravans as they passed. Viscontis and the Sforzas were banished beyond the Adda; the inhabitants of Brescia and Bergamo, and with them the hilly country that connected them with the Veronese were annexed to the Venetian Republic.

Attracted by her interests in the north, Venice never, except by chance, or for political reasons, cast a glance towards the Italian peninsula, save to guard the rights over the Adriatic. Under these circumstances the Gonzagas survived the shock that had unmercifully shattered the Scaligers and Carrarese. Mantua and the low country surrounding it might be an objective for a Power anxious, like the Scaligers, to push their dominion from the central basin of the Po beyond the river. But it was of no use to the Venetians. They were pleased that the country should be in the hands of a friendly prince; by the honorary title of Generals Commanding their Armies they kept the Gonzagas bound to their interests, and assisted them financially to keep up the luxury of a Court which was not without æsthetic splendour, and could not have been maintained by the taxes alone imposed upon their subjects. Thus they accustomed the Gonzagas to live in debt, and on foreign pensions. The last of them ended by selling his principality piecemeal, and it is said the sum he received was spent in maintaining a seraglio. The French bought the principality.

In 1681, Duke Gonzaga had ceded Casale to them, and when the Spanish War of Succession broke out, the military advisers of Louis XIV. considered it would be advantageous to have a fortress like Mantua, and a territory astride of the Po, for the operations of an army destined to prevent the Imperialists from advancing towards Naples, or to take them in flank if they turned towards the Dukedom of Milan.

The question had not yet been raised of carrying the war into Venetian territory. Gonzaga received five thousand pistoles, and opened the gates of Mantua to the French battalions. For very shame he excused himself to the Emperor, to whom he was a doubtful vassal, on the plea of having been compelled to yield to force. Thus the French were established in Mantua, even before the Imperialists entered Italy. They flattered themselves they had secured a good position for the impending struggle.

Catinat, who commanded the Army of His Most Christian Majesty

in Italy, was of opinion that if it were well to arrest the march of the Imperialists after they had come down from the Trentino, it were far better to prevent them from coming at all. He proposed to the King—and, moreover, insisted on his proposal—that he should take up a position between the Lake of Garda and the Adige, and block the only road by which, from all accounts, the Imperialists could enter Italy. But the neutrality of the Venetian Republic had to be considered. Venice, though venturesome at sea, had never been really warlike on land. In her great wars for territorial expansion, she had employed mercenary troops. She never had recourse to the arms of her subjects to maintain her supremacy on land. Military armaments existed, but there was a jealous feeling that they should not be used. A few idle soldiers did duty in the fortresses; a few old and rusty arms lay in the magazines. She wished to rule on the theory of living unarmed amongst ambitious, powerful, and well-armed neighbours; of opposing the sanctity of the rights of nations to the material violence of foreign Armies; of disconnecting herself absolutely and permanently from any political interests, as though she lived out of the world.

Under these circumstances, when Louis XIV., to please his general, asked permission to march the French Army over the Republican territory, the Senate gave evasive answers, but could not do otherwise than consent to the proposal of the French monarch. On the other hand, to avoid greater difficulties, they had to do as much for the Austrian general.

So that during the year 1701 the good people of Verona and Brescia had the enjoyment of seeing Austrian and French battalions living and fighting amongst them, and the Senate could only heap up protests and claims for damages.

Thus a portion of Catinat's Army took up a position in the pass of Monte Baldo, between Pastrengo and Rivoli, in order to prevent the enemy from entering Italy. He did not succeed in his object, for the Austrians came down on his rear by difficult and little-known roads. The crossing of the Lessini by the Austrian Army, under Prince Eugene of Savoy, is equal, if not superior, in merit to the much-vaunted passage of the Great St. Bernard. Catinat was completely taken by surprise. Whither could this Army be marching, which had debouched from the mountains in his rear? To Mantua, to Southern Italy, or to Milan? The occupation of Mantua was a mistake for the French, as it burdened them with a task which should have been divided between two Armies. Catinat could not attend to the defence of the Adda, and at the same time to that of the Po.

The situation was somewhat similar to that of 1866, when the Italian Army was divided between La Marmora and Cialdini, though the conditions were different. Prince Eugene, divining the predicament in which his enemy was placed, took advantage of it, kept him at bay, and marched in security towards Brescia, arriving at Chiari. General Villeroi, who arrived in Italy full of bravado, to replace Catinat, could not grasp the situation, or see the impossibility of defending Milan and holding Mantua;

he continued to believe in the supposed treachery of the Duke of Savoy, and seemed incapable of taking any measures whatever. The French had not enough troops in the garrison of Mantua to vanquish the enemy. Prince Eugene did not dare force the passage of the Oglio, and the campaign of 1701, commenced with such ambitious projects, ended in inactivity produced by the powerlessness of either party to take the offensive. In the next and succeeding years the war dragged on in Italy; the Armies, small in numbers, were content to gain time.

For a short period the Imperialists endeavoured to drive the French out of Mantua, and then gave themselves up to looting the territory of the Duke of Modena. The great object of the Viennese Cabinet was to keep a footing in Italy, to the possession of which country they aspired, until the battle of Turin in 1706 entirely changed the situation, and led to the complete expulsion of the French from Italy. The Dukedom of Mantua passed into the hands of the Viennese Hapsburgs with all the other Spanish possessions in the peninsula, and the Emperor was able to justify its annexation by accusing the duke of felony and treachery. Louis XIV. abandoned him when he abandoned Italy, and for very shame offered him a few thousand crowns. The duke did not refuse the offer, for he was greatly in want of them at Venice—that luxurious and pleasure-loving city, where he had taken refuge. He wished, however, to pose as a sovereign who had been sacrificed to duty, and as a matter of fact he died within a year. His calumniators insinuated that his death was caused more by devotion to pleasure, than to grief at the loss of his principality.

Mantua remained in the possession of Austria, and was looked on as the bulwark of her dominions in Italy; but this did not prevent the loss of Naples and Sicily, after which Mantua and its surroundings became a mere appanage to the Dukedom of Milan, especially in the political conditions which prevailed in the Italian peninsula during the whole of the last century. In 1796 General Buonaparte, having stormed the Piedmontese passes, ejected the Austrians from Milan, and the remains of their Army sought refuge in Mantua, expecting to be relieved by reinforcements from their Emperor. These reinforcements came through the Tyrol. Buonaparte had not sufficient forces to besiege Mantua and also repulse the Austrian Army. He was in the same predicament that had paralysed Catinat a century before, but with the energy of youth (he was twenty-seven years of age) he solved the difficulty by a bold but not extraordinary decision: he sacrificed Mantua, and marched with all his available forces against the Austrian columns under Warmser, which had already reached the territory of the Venetian Republic, between Lonato and Castiglione. He drove them back in the mountains, and pursued them with more of the audacity of an adventurer than the cool reflection of a general commanding a Regular Army; he harassed, attacked, and wearied them, clinging to their tracks up the Adige and down the course of the Brenta. At length they reached Mantua, weary, disorganised, and reduced in numbers. They increased the number of soldiers in the fortress, but were no

addition to their strength, for their mission had been to raise the siege. That same year the hope of saving the one stronghold that remained to them in Italy induced the Austrian Government to make a second, and yet a third, effort. The fate of one was sealed at Arcole; that of the other at Rivoli, on the very ground where Catinat had hoped to attack and defeat Prince Eugene of Savoy's battalions. With an enterprising general like Buonaparte in front of them, it was impossible to render succour to that distant spot isolated from every part of the Venetian Republic. Finally, the garrison of Mantua surrendered on February 3rd, 1797. The Austrians evacuated Italy, just as the troops of Louis XIV. had evacuated it ninety years previously.

The treaty of Campoformio left them masters of a part of the territory of the Venetian Republic, and they had some hopes of securing Mantua, which would have been henceforward irrevocably united to the Empire. In the numerous re-adjustments of frontiers which took place in the valley of the Po, Napoleon would never concede this point, so long as he remained arbiter of the destinies of Italy and Europe. The possession of this fortress gave him the power of entering and dominating Italy, and limited the influence of the Austrians to a temporary occupation of Venetia. On the fall of the Napoleonic Empire, the power of Austria supplanted it in Italy, as she had succeeded in supplanting the Spanish dominion in the previous century. She found herself master of the former vice-royalty of Italy, and gave it the name of Venetian Lombardy; she ruled the Italian States as Napoleon had ruled them, by entrusting their government to members of her Royal Family. The strategic position with regard to enemies that might appear from the west was in nowise different from that of the eighteenth century, save that the Venetian Republic no longer existed, and that the possession of the fortress of Mantua held also the hilly country which united it to the Tyrol. It was over this country that Buonaparte had chased the Austrian Army sent to relieve Mantua, and over it Marshal Radetzky drilled his Army to defend the power of the Austrian Empire in Italy.

In 1848 the tranquil possession of Italy by Austria received its first severe shock. It was then that the hypothesis foreshadowed by Radetzky in 1842 was realised in every point. Within five days the Austrian Army, pursued by the insurgents, had been forced to abandon all the cities in Lombardo-Venetia, and take refuge in Verona. Mantua barely escaped, and was only saved by the sagacity and energy of its governor. The small fortress of Peschiera was only inhabited by the garrison. The Piedmontese Army, under the command of the King, hastened to take part in the national war. It crossed Lombardy without striking a blow. The renown of the Austrian cavalry compelled it to make a long detour to avoid the plains of Montichiari. The passage of the Mincio at Goito was hardly disputed. The war was sudden and unexpected; the mobilisation and assembly of the Piedmontese Army were effected on the way to the scene of action, and on the Mincio, 100 miles from the Ticino. In three weeks the Army was ready: it seemed a long time to the impatience of the age. Now, looking back,

we must say it was almost miraculous. But difficulties began at Mincio. Peschiera, Verona, and Mantua were the three unknown quantities in the triple equation the Piedmontese generals had to solve, and they did not include the influence exercised by the political situation in the territory around them. In the hope that they might yield, either to the wish of the people, or to the treachery of their defenders, as had happened at Venice, at Palmanova, at Osoppo, at all the towns of Lombardo-Venetia, tempting offers were made to all three; and, as they remained firm, it was decided to employ the small force available against the least of the three. So Peschiera was besieged, quite independently of what was happening, far or near, and without any knowledge of the state of the Austrian Army under the walls of Verona. The idea of cutting the only communication with the monarchy across the Tyrol, and starving the enemy in Verona itself, never dawned upon anyone. The Pinerolo brigade was employed in the siege; the others were deployed between Valeggio on the Mincio, Bussolengo on the Adige, and Pacengo on the lake of Garda, along the crest of the hills, so as to protect the rear; the Regina brigade at Villafranca was looked on as the centre of a vast circle formed by the Army deployed on the heights. Then there was Mantua; the recollections of the time of Napoleon impressed it on the minds of all. The Tuscans arrived from Modena—6,000 of them at most; they were ordered to halt in front of the fortress on the right of the Mincio, and there they remained, ten miles from the nearest post of the main Army at Goito (where there was a Neapolitan battalion); there were too many of them to follow the movements of the enemy; they were too few and too far from their reinforcements, had they been compelled to oppose him.

One fine night the whole of the enemy's Army, which had collected in Verona, and had been reinforced by some troops from Isonzo, pressed by scarcity of food, marched off to Mantua to collect whatever provisions they could find in the plains. Their object was to gain time, and risk nothing until the re-action of revolutionary anarchy had somewhat loosened the temporary coalition of the Italian Armies which blockaded them on the Adige. No less than 45,000 men passed within seven miles of Villafranca the night of May 27th, 1848, without being observed! The Piedmontese battalions, accustomed to the tranquillity of their new exercise-camp on the hills surrounding Peschiera, did not push their patrols so far. When the news was heard the following day it was scarcely believed; but when it was confirmed, orders were issued to concentrate some battalions and the greater part of the cavalry on the right of the Mincio, near Goito, to defend the besiegers of Peschiera and their supports. The assembly, which commenced the night after the Austrian sortie, was slowly accomplished, as the confused and hesitating orders filtered through the various commands. The battalions formed up at Goito, with the cavalry squadrons behind them, and awaited their adversaries. Meanwhile, the little handful of Tuscans, reduced to 5,000 men, uncertain between the promises of reinforcements which they hoped to see arrive, and which did not and could not arrive,

and the difficulties of a very precarious position, were attacked by the Austrians, who had left the fortress to spread themselves over the plains of Mantua. At the distance of half a century the correspondence between Bava and De Langier seems astounding: we would willingly find some justification for the promise of reinforcements, which it was absolutely impossible to send, on account of the distance. The hour for possible retreat had passed, and the old soldier of Napoleon, who commanded the Tuscans, resigning himself to the inevitable, was able to crown the terrible defeat of his troops with a halo of glory. Freed from molestation by the dispersal of the Tuscan Army, the Austrians overran the plains of Mantua, and their Uhlans penetrated as far as the mouth of the Oglio in search of provisions and forage. One of the Austrian corps, approaching Goito, held in check the battalions assembled there, without attacking them seriously. There would have been no object in joining battle, nor anything to be gained to compensate the risk of an engagement. For a brief moment the Piedmontese Army had victory within its grasp; it might have been rendered decisive with the numerous squadrons not far distant, with battalions full of enthusiasm from the success they had hitherto met with, and with others released by the surrender of Peschiera, which had just fallen, and which would have enabled the besiegers to join in the pursuit. They had only to push on, attack their somewhat scattered enemies, pursue them between the Mincio and the Po, and drive them under the walls of Mantua, even if they could not cut them off from the fortress. Then the day of triumph would have dawned. Instead of this, the battle, which had been interrupted, was not continued on the following day, and the inclemency of the weather was quoted to justify the hesitations which prevented the harvest of victory.

The systematic plans of the generals accorded but too well with the prudence of the King, who did not dare risk at one blow the existence of an Army he could not possibly have replaced. The rivalry of the Italian princes, the suspicions aroused by a neighbouring Power in arms, and on the watch from the Alps, and the intemperate zeal of contending factions, may possibly justify in history the prudence of the King, who at Goito, as before at Pastrengo, was content with half a victory, when it might have been decisive. The Austrian Army was able to return quietly, and even diverge from its path, to attempt opening communications with Venetia and with the centre of the Empire across the Alps, driving out of Vicenza the Pontifical Army, and the few volunteers who strove to stop them. The undertaking succeeded beyond all expectations, and greatly improved the position of Marshal Radetzky, who was able calmly and securely to await the dissolution already begun in the Italian revolutionary movement.

The news of a rebellion at Vienna was compensated by the intelligence that the Neapolitan Army which had reached the Po, to take part in the war of independence, had retired. Not feeling himself strong enough to attack the Piedmontese, who had returned to the hills round Sommacampagna and Valeggio, the Marshal employed his time in

enforcing the submission of Venetia, and commencing the siege of Venice.

Until then the classic ground, over which the bold and sagacious Buonaparte had waged war, had offered few opportunities to the rival Armies, one of which was entirely occupied with the siege of Peschiera, and if not forgetful, certainly careless of all that did not concern the siege, while the other was compelled to seek refuge and safety under the walls of Verona.

If the Austrians did leave it in that great sortie which took them as far as Goito, they were compelled to do so by scarcity of provisions, and the necessity of obtaining them at any cost. It was afterwards said that they intended during the sortie to bring confusion and defeat on the Piedmontese, and penetrate as far as Peschiera to raise the siege. The victorious party were pleased with the idea, because it enhanced the results of the victory obtained at Goito; the adversaries accepted it as exalting the merits of their commander-in-chief. In reality, one need only consider the proportion of the forces, the length of the march, and the difficulties of the hilly country in which the Piedmontese had taken up their position, to be certain that when the Austrians left Verona in May, 1848, their only object was a vast foraging expedition in the plains of Mantua. Even after Goito the two opposing Armies continued mutually powerless. Neither side had sufficient preponderance to take the offensive, nor could either of them hope for effective reinforcements. The Austrians hurried on their operations in Venetia, with the secret hope that at the worst they might retain the strong line of the Adige with Mantua and Verona for their frontier. The Piedmontese, inactive and undecided, were astonished to find Peschiera of so little value in the solution of the problem before them, and eventually thought of the pass of Rivoli, the very same to which Catinat had advanced in 1701, and Buonaparte in 1796. But it was too late, now that Radetzky had the whole of Venetia open to his rear. It should have been reached at the beginning of the war, when the narrow road of the Adige was the last link that united the beaten Austrian Army with the rest of the world; it should have been thought of at Pastrengo, and the contest engaged in there should have had a far higher object than preparing for the investment of the little fortress of Peschiera.

Thus for six weeks after the fall of Peschiera did the staff of King Charles Albert ask themselves the question: What next? And we must confess that, given the political situation, the field of action, and the numbers of the enemy, the answer was not easy. Instead of carrying out the plan on which the campaign was commenced, it appeared that, Peschiera having fallen, the time had come for the siege of Mantua; and yet, all things considered, there was no particular reason for it, beyond the prestige attached to the name of that fortress. Meanwhile, to besiege Mantua it was necessary to leave Lombardy unprotected, and march into Serraglio, on the right bank of the Mincio, or else on to the plain of Roverbella, protected by Verona on the flank.

It was out of the question to remain inactive any longer, they must

either do something or leave the country: a terrible dilemma, which ever led to disaster the Army placed in such difficulties. A division of Lombard recruits arrived, and the siege was decided on.

The Army was spread out over 60 miles from the slopes of Monte Baldo to the lowlands of Governolo beyond Mantua, so as not to lose possession of the recently-conquered Rivoli, and the advantages of the heights. This was the moment Radetzky had waited for; he sallied forth from Verona with his troops, marched directly on the Mincio by Sommacampagna, and cut in two the enemy's attenuated line before one half could come to the assistance of the other. The remains of the left wing, under de Sonnaz, re-crossed the Mincio, the right wing remaining on the plain between Villafranca and Mantua. Radetzky was master of the heights. This action took place on July 23rd, and was the beginning of the end. Neither the Piedmontese Army nor the King accepted the situation. The Dukes of Savoy and Genoa, at the head of the Cuneo and Piedmont Guards, strove bravely to regain the hills between Custoza and Sommacampagna, in order to cut the enemy off from Verona, and drive him into the Mincio.

The first day they managed to gain a footing on the edge of the hills; on the 25th Radetzky made a counter-attack with the whole Austrian Army. The three brigades fought till evening, but, exhausted with the long and bloody contest, were forced to descend on Villafranca. By some fatal error the two bridges over the Mincio at Volterra and Volta fell into the hands of the Austrians. The two wings of the Piedmontese Army could only unite by way of Goito. There the retreat commenced. The King, with his Army, took the Cremona road, followed, but not pursued, by the Austrians, with whom he had been in touch for four months. The reason the Italians did not efficaciously assist the King, who had taken the field in the cause of national independence, is a long and complicated story of jealousy, suspicion, ignorance, and presumption —passions which are displayed on the worst side of the Italian character; the reason why the Piedmontese Army failed to compensate to its utmost, by activity and daring, for its small numbers, may be explained by the line of thought of its generals, which prevented them from grasping the whole situation, and by their professional education, which led them to consider all military undertakings as independent of the enemy's position, of political considerations, and of the various boundaries of the theatre of war.

Of all the episodes in the campaign of 1848, the battle of May 6th, under the walls of Verona, had the most important results. It is not very clear to us, and probably was not very clear to those who directed operations, why the Piedmontese Army, which was watching the siege of Peschiera from the heights of Sommacampagna, should have come down to attack the enemy at Verona. It was necessary to take some action, and on this occasion, as on so many others, the Army marched to battle as though the contest could be transformed into a trial of strength, instead of being, as it is, the conclusion of a syllogism closely

bound up by its premises. But if the object was uncertain, the orders for executing the march on Verona were very precise. The brigades moved as best they could, because they did not understand the orders; besides the mulberry trees interfered with the view, ditches interrupted communications between roads and fields, sand-heaps peculiar to the country upset the deployments, and the carefully-arranged communications between brigades were lost. Some did not find their prescribed place in the line of battle the whole day long; the Savoy and the mixed brigade on the left could not overcome the resistance they met with at Croce Bianca, and finding themselves isolated turned back as they had been ordered, when they thought the fighting was over. The Regina brigade, that had begun the attack on San Massimo, being suddenly called to support the attack on Santa Lucia, finished by not fighting anywhere. The principal attack, which should have been on San Massimo, was directed on Santa Lucia.

Radetzky's battalions were entrenched in the villages which lie on the brow of a slope to the west of Verona, which surrounds the city on that side, and is an ancient bed of the Adige. There they quietly awaited the attack of the Piedmontese brigades on the memorable 6th of May, 1848. As a matter of fact, the attack was resolutely delivered against Santa Lucia by a series of circumstances of which tactical considerations formed no part. The Aosta and Casale brigades assaulted the village with great energy, and succeeded in driving out the enemy, the Guards and Caneo brigades, under the Duke of Savoy, deployed along the crest beyond the village to prevent the enemy from retaking it. As in a Shakespearean drama, King Charles Albert, with his tall, upright figure, stood in front of his troops, watching the walls and anxiously expecting some event which did not occur. On the other side, old Marshal Radetzky stood on a bastion, profoundly grieved to see his lines broken after the obstinate defence made by his troops, and did not dare employ the reserves he had kept in Verona to quell any possible revolt. At length he yielded to the entreaties of his staff, and risked two battalions to support the counter-attack. Whilst the Austrian battalions were cautiously but resolutely advancing towards Santa Lucia, the Piedmontese having finished their field-day, obeyed the orders given them, and quietly started for camp in good order. At nightfall the two parties were in the very same positions they occupied in the morning, and, beyond some hundreds killed and wounded, and proofs of indubitable valour shown on both sides, nothing had been accomplished.

Such was the day of Santa Lucia; as an example of how a battle should be arranged and directed it is not worth much, but its consequences with regard to the territory between the Mincio and the Adige were of the utmost importance.

Marshal Radetzky was profoundly impressed at that supreme moment when he saw his battalions driven out of Santa Lucia, in spite of the obstinacy with which they had held it; he knew of the contest at Croce Bianca and San Massimo, and judged it might have ended otherwise, had the action been fully developed; he thought of the position in which

he would have been, had his troops, driven from the crest of the hills, been forced to take refuge within the walls of Verona, and of the importance of that city to the Austrian power in Italy. Such was the force of these impressions that they revived ideas long ago conceived in Radetzky's mind, and he at once gave orders to commence the first outlines of those huge fortifications which subsequently covered the whole country between Verona, Rivoli, and Peschiera, and which, after the lapse of years formed, under the name of the Quadrilateral, one of the most formidable military positions that had ever been devised or constructed. The manœuvres of the years antecedent to 1848 had imparted a knowledge of the theatre of war; the terrible trials of that year suggested the necessity of defending the possessions in Italy by something more solid than the old strongholds of Sanmicheli, or of Napoleon's generals. First of all, forts were built on the crest surrounding Verona; a double bridge-head over the Adige, leading towards Lombardy or towards Venetia. Then the fortifications of Peschiera were gradually increased so as to command the roads to the Tyrol, between the fortress and Verona. Lastly, ponderous ramparts were built at Rivoli and Pastrengo at the entrance into Italy, and at the foot of the hilly country surrounding the Lake of Garda to the left of the Mincio. Mantua was considered a point from which Imperial supremacy over the dukedoms beyond the Po, and in the centre of the peninsula could be maintained. The territory between the Mincio and the Adige, between Peschiera, Verona, Mantua, and Legnago, bounded by the four fortresses, intersected by canals and marshes, bristling with fortifications, was a battle-field so prepared that the European tacticians looked on it as a problem—if not insoluble, at any rate difficult of solution. It was the inexhaustible subject of their studies, of their hypotheses, and of their scientific military lectures.

Eleven years after the war of 1848, Austrian dominion in Italy consolidated by the events of that and following years, sustained another severe shock. The French Army, in combination with that of Piedmont, in which many youths from other Italian provinces were fighting having been victorious on the Sesia and Ticino, had freed the whole of Lombardy as far as Brescia from foreign rule. The Austrian Army, somewhat disorganised by the opening engagements of the campaign, had retreated behind the Mincio, and had regained confidence with its reinforcements. The Emperor of Austria had personally taken command of the troops, and, by this determination, unusual in his race, had proved how much interest he took in the retention of his Italian possessions. The fact of his having employed nine army corps, or three-fourths of the Imperial forces, was another proof of the gravity of the contest taking place in the country between the Chiese and the Adige. The staff of the Army were continually weighing the arguments in favour of a certain locality where a battle should be fought, the influence of which would be most important in the history of the Empire. For some days it seemed more advantageous to await the enemy behind the Mincio, with flanks and rear protected by the Quadrilateral. Then the idea prevailed that it

would be better to cross the Mincio, march down from the hilly country round Lonato and Volta, surprise the enemy as he crossed the Chiese, and attack him between Castenedolo and Ponte San Marco. The hussars charging over the plain would greatly assist the infantry in defeating the enemy. And if victory did not crown the Imperial arms, the troops could have retired from the battle-field of Montichiari, behind the Mincio, and found many positions on the hills in their rear to check the impetus of the enemy's pursuit. In any case an attack would not, even at the worst, have prevented another defensive battle behind the Mincio, among the fortresses of the Quadrilateral. If, on the other hand, the first engagement were a victory, the allies would not have a defensible position till they had retreated behind the Ticino. On the 23rd June the Austrian Army, of 160,000 men, with 438 guns, divided into two wings, crossed the Mincio, turned to the north-east, and advanced obliquely so as to find themselves the following morning—the second wing to the right, on the hills between Pozzolengo and Solferino; the first on the left in the plain between Guidizzolo and Rebecco. That morning of the historical 24th June, 1859, they were to have continued their advance towards Lonato and Carpenedolo. Before they could move they were attacked by the Allied Army. The contest opened fiercely, and was chiefly centred on three localities: Medole-Guidizzolo in the plain, where, about 5 a.m., MacMahon (2nd Corps), and Niel (4th Corps) encountered the Austrian 3rd Corps; Solferino assaulted by Baraguay d'Hillers (1st Corps), and defended by the 5th Austrian Corps; the heights of San Martino defended during the whole day by the 8th Austrian Corps against the continuous but disconnected attacks of two and a half Piedmontese divisions. Between Solferino and San Martino the Durando division was boldly advancing in echelon on Madonna della Scoperta, without any preconceived plan of action, and unable to form any idea of what was going on to the flank, which was at some distance, and concealed by the nature of the ground.

The battle on the hills extended into the plain, with a front at right angles to the course of the foot-hills. The object of the Austrians on the plain was to reach the Chiese, but they could not safely advance until they had gained possession of the mountain on their flank. For seven hours and a half the Austrian battalions held their own against the attacks of the 1st French Corps and the Guard on the historic heights around the tower of Solferino; but the first wing on the plain could not make any progress. By force of circumstances, and possibly from force of habit, the attacks on the French corps of MacMahon, Niel, and Canrobert were made by brigades, by battalions, by divisions, in a series of indefinite efforts which only wearied the assailants, without attaining their object; whereas, had they been combined in one energetic charge, the living mass in front of them might have been overcome.

When the brave Austrian soldiers had lost Solferino they endeavoured to make another stand on the heights of Canriona. The Emperor of Austria demanded another effort from the brigades in the plain; it was made, but the weary and discouraged troops failed to penetrate the line

of fire which opposed them, and the retreat was orderd at 4.30 p.m. While the Austrian troops, disordered by the events of the day and weary of fighting, were on their way to the Mincio, pursued by the French artillery, a terrific storm of rain, thunder and lightning, burst upon the field; it partially interrupted the conflict, and the recollection of it was firmly impressed on the minds of survivors, though they had witnessed other and more terrible scenes during the day. While the French and Austrians were fighting on the plain, the Piedmontese divisions were wearying themselves in the attack of the formidable heights held by Benedek's corps. It was a separate and almost independent episode—a battle within a battle. If the French Army thought they would only meet the enemy's rear guard and found themselves opposed to an Army, the Piedmontese thought the country round Peschiera had been evacuated, and were already preparing to besiege the fortress. A reconnoitring party sent out by Cadorna had passed San Martino and fell in with the whole of Benedek's force at Pozzolengo; it consisted of 21,000 men who drove the scouts back to Desenzono and occupied the heights of San Martino. This was at 7 a.m., and the whole day long desperate but useless efforts were made to drive them from the position. At 8 the Cuneo brigade, between 9 and 10 the Cucchiari division, and at 4.30 the Mollard and Cucchiari divisions and the Piedmont brigade led by the King himself made successive attacks. A combined assault ever obtains better results than disconnected efforts. When the terrible storm burst, the Piedmontese had succeeded in establishing themselves on the slopes of San Martino. Yet another assault, in which the Aosta brigade joined the mingled forces that had hitherto taken part in the battle, and at length Benedek was compelled to abandon the position on which he had resisted seven separate assaults. Night fell and the hardly-fought contest ended with the victory of the Piedmontese troops, who lost 500 killed and wounded.

After the victory, the allies were in no hurry to cross the Mincio, where the same difficulties awaited them that the Piedmontese had suffered from in 1848. The Emperor Napoleon ordered up the artillery necessary for the attack on Verona, allowed the Piedmontese divisions to invest Peschiera, and then wrote to the Emperor Francis Joseph, asking him if he did not think it would be well to put an end to the war. The sudden decision that led to the peace of Villafranca has been explained in many ways. Many circumstances influenced it, not the least important of which was the military situation; Napoleon had not sufficient force in Italy to continue the war when he found himself confronted with the Quadrilateral, nor to undertake a weary succession of sieges to drive the enemy from the Adige, when he held a strong position, and could draw food and supplies from Venetia in his rear.

This was the state of things when the Italian Army commenced operations in 1866.

The war, which had been interrupted for seven years, broke out afresh, and the prosecution of it was rendered still more difficult by the Quadrilateral, with all its powerful fortifications from Peschiera through Pastrengo to Borgoforte. It was necessary to cross the Mincio, and

take up the position held by the Allied Army the day when the peace of Villafranca was settled, to hold the hills between Peschiera and Verona in such a manner as to compel the enemy to defend the country between the fortresses, and keep him there so as to give the divisions from Ferraro, under Cialdini, time and opportunity to cross the Po and Adige, and march towards Venetia past the fortifications on the bank of the latter river. Then followed the battle of Custoza (June 24th, 1866), fought on the slopes that rise between the Mincio and Villafranca, from Valdeggio, Monzambano, Custoza and Monte Croce. In these days, we feel an unjustifiable repugnance to enquiring into the events of that battle. We would like to read an account of a victory to adorn the first page of our new history; we exaggerate the misfortune with the identical sentiment of burning shame that filled the hearts of those who had gone forth to battle full of confidence in the result. Yet the Army was not to blame; though it had only been formed for five years, and from the elements of five different Armies, it held its own for twelve hours against the most strenuous attacks, and under unfavourable circumstances. The fault lay in the want of skill and experience in the commanders, the want of determination in the conception of the plan of battle, the want of cohesion in the attack,—the result being so many misunderstandings that defeat resulted. For this reason we should be constantly studying the battle of Custoza, so that we may not again commit the same errors. The primary cause of the reverse at Custoza was said to be the disagreement between La Marmora and Cialdini.

The difference of opinion between these two fiery spirits, embittered by the cliques that formed around them, may have had a pernicious effect on the general conduct of the war, but had no particular influence on the battle of Custoza. The division of the forces did not minimise La Marmora's army unduly, and was necessary, to avoid crowding the Quadrilateral by sending twenty divisions through it to cross the Adige, and entangling them in the narrow and difficult pass between Ferrara and Treviso. La Marmora, with twelve divisions, which represented at least 120,000 combatants, was superior in force to the enemy's 80,000. But why must he needs deprive himself of four divisions, and send them in the direction of Mantua? Had not the attraction of that fortress been sufficiently hurtful to the Piedmontese and Tuscans in 1848, that he must again be allured by it? Was it necessary to re-occupy Curtatone, in spite of the lesson of twelve years ago, and also prepare for an attack on Borgoforte? It was perhaps an offering due to the military history of exploits which have made Mantua famous; but the reduction in numbers owing to this expedition diminished the overwhelming forces which would have told in favour of Italy on the day of battle.

The repetition of the tactics of 1848 was to be seen in every movement that preceded the actions. It would seem as though the Minister of Foreign Affairs, placed by some accident in command of the troops, had referred to the order-book of sixteen years ago, only substituting divisions for brigades. The first day he marches beyond the Mincio, with his troops carefully formed in a semi-circle on the plain, reaching Roverbella as though he were

inclining towards the Adige, or perhaps Mantua; he neglects to take possession of the hill, postponing the occupation till the morrow. The following day: extension of divisions to the flank, near places held eighteen years before by brigades; one division of the 1st Corps halted to watch Peschiera, one to Castelnuovo to overlook Pastrengo, the other two at Sona and Santa Giustina, on the eastern edge of the hills; from the 3rd Corps, one division to Sommacampagna, and one to Custoza, the other two in Villafranca; Durando in place of de Sonnaz, della Rocca in place of Bova, and two divisions of the 2nd Corps recalled to Goito and Roverbella to represent the reserve division of 1848. It was in vain the Mincio had flowed for sixteen years, if they still believed that only the proportion of numbers had changed meanwhile. The occupation promised to be bloodless; no sign of the enemy was to be seen, or in any case no notice was taken of him. But this enemy had already (on the 23rd) commenced the march, which he continued on the 24th, to reach the southern edge of the hills, and enable him to fall on the adversary's flank. Necessarily the Italian divisions inclining from their original direction towards the north, and the Austrian brigades marching towards the south, came into collision. The Tione and the pass of Staffalo divide almost the entire hilly country into two zones, stretching from west to east. The battle was fought on the line of this hollow. The Italians had to gain the positions to which they had been ordered; the object of the Austrians was to hurl them from the heights on to the plain, and the absence of any particular directions, which had not been issued, and which were not given even when the enemy was encountered, combined with the nature of the ground, resulted in the battle becoming a series of conflicts, fought out by each division on its own account, and without any special object. Cerale was on the Castelnuovo road, Sirtori astride of the Tione, near Santa Lucia, Briguone at Monte Torre and Monte Croce. The 3rd Corps, kept powerless round Villafranca by a few enterprising Austrian squadrons, watched the village with its two leading divisions, while the other two marched to Monte Croce and Custoza, arriving there only when Briguone was defeated. And so these disconnected contests went on, with varying success on either side, without any cohesion, for no one attempted to direct them. The Archduke Albert had intended in the morning to make an attack along the Mincio to cut the Italian line of retreat. This was fortunately prevented by Pianell, who crossed the river with a part of his troops, and fell on the flank of the enemy marching towards Valleggio. In the afternoon, when victory seemed to be in the grasp of the Italians, the Archduke decided to hurl all his available forces against the Govone division, which, though weary and exhausted, held Custoza and the positions near it. At that time there were fifty battalions round Villafranca, with at least forty guns and some thirty squadrons, with the commander of the 3rd Corps in the village. Oh! General della Rocca, why did you not realise that the good genius of Italy had given you the victory?

As they had not won the battle, the Italians considered the best thing they could do was to repass the Mincio; and they crossed it during the

night, leaving the Austrians halted on the edge of the hills: instead of a counter-attack there was a torrent of recrimination, an exaggeration of the shame of defeat, which seemed to stay all Italian energy in the days that followed the disaster at Custoza.

The conflict had been unforeseen, as often happens in war, and especially in a labyrinth of hills like those surrounding the lake of Garda; but then the object of the Italians in ascending those heights was vague, oscillating between the wish to make a feint and the hope of gaining a good position among the fortresses. Such an uncertainty of ideas should never exist during a march against the enemy, and it never would exist if the habit prevailed of thinking what the enemy would be likely to do, or considering what we should do in his position. Then we had the deviation of two divisions, the inexplicable marching and countermarching of the other two, and above all the absence of that unanimity of purpose which might have compensated for the dislocation occasioned by the nature of the ground covered with incidental eminences and broken by the course of the Tione. The prudent initiative which prevailed on the left of the line was wanting on the right, where it might have dispelled the inactivity displayed there, when the time came for a rapid and energetic attack; the battle, commenced by the Italians without any preconceived plan, ended in an unsuccessful climax. Venice has been ceded to Italy, and the New Austrian policy attracts her to the East; hence the district, on which for a century and a half the northern invasion met the western —where lay the stronghold of the Austrians against the tide of insurrection, and where they prepared their counter-attack against the wave of national independence—has lost much of its importance. The prudent Catinat, the sagacious Eugene of Savoy, Buonaparte in the palmy days of his fiery genius, and the wily Radetzky have all made their names famous on the scene where the Generals of the Revolution succeeded those of Louis XIV., where the stern figure of Charles Albert moved, where Napoleon III. and Victor Emanuel led their Armies.

It is remarkable how, in the various events of that long period of time, the geographical formation of the country has systematically influenced military operations, so much so as entirely to overthrow them and cause failure, if the leaders from ignorance or incompetence failed to recognise its attributes. When the French in the beginning of the eighteenth century attached great importance to the defence of Mantua, they found themselves helpless as the Piedmontese were in 1848, or La Marmora on the Mincio in 1866, the Armies collected and sent into the Italian peninsula in 1796 were entangled in the Mantuan snare. Mantua, with its annex of Borgoforte, is the stronghold where the invasion of the peninsula is prepared, or the bridge-head which forms the entrance from Emilia into the sub-Alpine plains. The hilly track surrounding the lake of Garda, and traversed by the Mincio, is the real centre required by Armies debouching from the Tyrolean valleys for re-organisation and the march to victory; the real battle-field where invaders from the Central and Eastern Alps come into contact with those marching parallel to the Po; the real stronghold where a northern Army halts before making the counter-attack.

It was for this reason that Catinat and Buonaparte, by securing the inlet formed by the pass of Monte Baldo at Rivoli, strove to block it against the Imperial troops. When war broke out in 1848, the Piedmontese might possibly have abridged its tedious progress, and decided it in their favour, had they not carelessly entrusted the first assault on the passes of the Tyrol to half-drilled volunteers. The Austrians realised its importance, and the repeated manœuvres of Radetzky's Army, the supreme trials of 1848 were followed by the incessant labours which fortified the region between Peschiera, Pastrengo, and Verona. This, more than any other circumstance, enabled them to stop Napoleon III. at Villafranca, to keep a footing in Italy until 1866, and to leave it with dignity. If geography is an element of the art of directing Armies, history will assist us in analysing the laws on which its influence is based.

UNIFICATION OF TIME AT SEA.

THE following letter was received early this year, and has been published at the request of the Royal Society of Canada; its publication has been delayed owing to the pressure for space in the columns of the JOURNAL:—

To the Secretary Royal United Service Institution.

SIR,—I have the honour, on behalf of the Royal Society of Canada, to submit the accompanying Memorandum (with appendices) relating to the unification of time at sea.

These documents refer to a scientific reform which has long been under consideration in the general interests and in the special interest of the mercantile marine of the world.

Paragraph No. 8 of the Memorandum, together with Appendices V., VI., and VII. (pages 29 to 49), refer to the opinions of shipmasters on this question. It will be noted that 97 per cent. of representative master-mariners are in favour of the reform.

Paragraph No. 5 points out that immediate official action is necessary, in order that the reform may not be indefinitely postponed.

In the interests of navigation and commerce the Royal Society of Canada respectfully asks the Royal United Service Institution to assist in promoting the reform by petitioning or otherwise influencing Her Majesty's Government to sanction the unification of time at sea and to cause the Nautical Almanac to be adapted to the change.

I have the honour to be,
Sir,
Your obedient servant,
JNO. GEO. BOURINOT,
Hon. Sec. R.S. of Canada.

The accompanying Memorandum is as follows:—

ROYAL SOCIETY OF CANADA,
OTTAWA, October 14th, 1896.

1. While the unification of time at sea will specially confer benefits upon practical navigation, it has an intimate relationship with the broad question of reckoning time throughout the world by a defined common standard.

2. It is but a few years back since every place on the surface of the globe followed an independent reckoning of time; the consequence was

the development of complications, as the twin agencies of human progress, steam and electricity, were gradually applied to rapid transit by sea and land. To obviate the difficulties which had arisen and were every day becoming more serious, a movement was made to reform time-reckoning. It had its origin on the American continent from the circumstance that the confusion incident to many independent reckonings had been experienced to the greatest extent in the United States and Canada. This fact will be easily understood when it is stated that so late as fourteen years ago, there were, between the Atlantic and the Pacific, no less than seventy different standards of time referred to in the working of the different railways. These various standards were unrelated to, and independent of, each other, and it can be readily seen that no trifling confusion and inconvenience resulted.

3. The investigation of the subject suggested the conclusion, that the same difficulty would sooner or latter be experienced not only throughout America, but likewise on the European continent, in Asia, in Australia and eventually in Africa; consequently it was the common interest of the human family to attain by international agreement a system of reckoning to minimise the difficulties alluded to, which could generally be followed. The Congress of the United States recognising the importance of the principal of uniformity and simplicity in reckoning, passed a joint resolution, with a view to obtaining such an international agreement. Soon afterwards the President of the United States invited the Governments of all civilised nations to send representatives to Washington to consider the subject in its various ramifications, and generally to establish the course most advisable to follow. Representatives of twenty-five nations met in Washington in 1884, and after a conference extending over a month reached conclusions of great importance. Seven resolutions were passed with substantial unanimity, all of which have generally been received as both expedient and wise. Although not in all cases formally adopted, the resolutions of the Washington Conference are being gradually accepted throughout the whole world, not simply in Europe and America, but likewise in Japan, China, India, Australia, and South Africa. There is a question of urgency in respect to the sixth resolution which demands explanation. The resolution reads as follows :—

"VI.—That the conference expresses the hope that as soon as may be practicable, the astronomical and nautical days will be arranged everywhere to begin at mean midnight."

4. In the opinion of the Council of this society, strong reasons present themselves for dealing with this resolution without delay. The adoption of the principle advocated, implies the substitution of civil reckoning for astronomical and nautical time, with their practical abolition at sea. Nautical time is already to a large extent fallen into disuse, and the principal change would be with respect to astronomical time. While astronomers individually have not been in perfect accord, the evidence referred to in the appended papers goes to show that as a class they are in favour of the change, provided it be made at a time-epoch which would be easily remembered; it has been apprehended that unless

so made, the change might give rise to error in astronomical calculations in after years. On this theory, there is a consensus of opinion that the most fitting time for the sixth resolution of the Washington Conference to take effect is at the change of the century.

5. Whenever the change may be made it will exact modifications in the Nautical Almanac, that publication so indispensable to navigators. As the Nautical Almanac is usually prepared and published nearly four years in advance, and as the nineteenth century passes into the twentieth in little more than four years from the present time, it is obvious that a final determination is now indispensable. It will be a matter of profound regret if this opportunity, which will not recur until a hundred years from this date, should be allowed to pass without definite action being taken. It would be deeply to be deplored if in this progressive age a principle in science which affects the merchant-marine of the world, and is fraught with positive benefit, should fail to obtain the permanent recognition it justly demands.

6. The merits of the subject are set forth in sufficient detail in the accompanying papers, viz. :—

(1). Memorial to His Excellency the Governor-General, from the Royal Society of Canada (April 27th, 1896).

(2). Communication to His Excellency the Governor-General from the Canadian Institute and the Astronomical and Physical Society of Toronto (April 9th, 1896).

(3). Second Report of the Joint Committee of the Canadian Institute and the Astronomical and Physical Society of Toronto (May 10th, 1894).

(4). Third Report of the Joint Committee of the Canadian Institute and the Astronomical and Physical Society of Toronto (September 21st, 1895).

(5). Paper, submitting the opinion of British and foreign shipmasters in respect to the proposed reform in time-reckoning at sea (April, 1896).

(6). Letter to the Governor-General from the Canadian Institute and the Astronomical and Physical Society of Toronto, submitting additional list of shipmasters in favour of unification (April 23rd, 1896).

(7). Summary of shipmasters heard from, up to July 25th, 1896, who have expressed their opinions on the unification of time at sea.

The facts to be gathered from these several documents are :—

(*a*). That the unification of time at sea has long been advocated—that the illustrious astronomer, Sir John Herschell, strongly favoured it ; that at the Washington International Conference of 1884, it was introduced and supported by all the representatives of the United States, comprising Rear-Admiral Rodgers, U.S.N., the distinguished astronomer Rutherford, and likewise by the head of the United States Naval Observatory, Commodore Franklin ; that at the same conference it was supported by all the representatives of Great Britain, comprising the chief hydrographer of the Admiralty, Sir Frederick Evans ; the illustrious astronomer, Professor Adams, of Cambridge ; General Strachey, of the

Council of India, and the delegate from Canada; further, that it received the unanimous approval of the representatives of the twenty-five nations constituting the conference.

(*b*). That astronomers as a class are in favour of the sixth resolution of the Washington Conference, provided a determination be reached sufficiently early to give effect to the proposal on the first day of the twentieth century.

(*c*). That representative shipmasters in the British and foreign merchant marine are practically unanimous in favour of the unification of time at sea.

(*d*). That the Lords Commissioners of the British Admiralty offer no objection to the principle of unification of time-reckoning at sea, and are willing to adapt the Nautical Almanac to the proposed change, beginning with the first year of the new century, provided all nations publishing ephemerides are prepared to take the same course.

(*e*). That the nations publishing ephemerides are (including Great Britain) nine in number—that these nations have been applied to for an expression of their views, and that the majority of them have been heard from. The British Admiralty, however, hesitates to adopt the change unless and until complete unanimity on the part of the nine nations has been obtained. (Admiralty letters of July 9th, 1896, and December 12th, 1895.)

7. On behalf of the Royal Society of Canada, I am directed respectfully to point out (1) that possibly complete unanimity, unencumbered by conditions, in a matter of this kind, is scarcely attainable; (2) that in the appended document, No. 4, evidence is presented which establishes that seven of the nine ephemerides publishing nations may be considered assenting parties to the proposed change, that the remaining two have in no way expressed dissent, and that their silence after sufficient lapse of time may fairly be taken as equivalent to concurrence; (3) that whatever action Great Britain may take will undoubtedly be followed by similar action on the part of all other maritime nations.

8. It is known that since the date of the memorial of the Royal Society of Canada to his Excellency the Governor-General, on April 9th last, additional lists of shipmasters have been received; some of which will be found in Appendices Nos. 6 and 7. Advices go to show that the lists are being continually increased. On September 4th, 1896, there were 458 shipmasters, active and retired, who had been heard from; of these, 446, or 97 per cent. of the whole, had given expression to their opinion, in favour of the unification of time at sea. Among these, there are 412 master-mariners in active employment on British, colonial and foreign steam and sailing ships, representing 522,082 shipping tons of the carrying steam and sailing tonnage of the mercantile marine. These men are thoroughly representative of the class to which they belong, and their decided opinion on the subject establishes beyond all question that shipmasters generally are practically unanimous in favour of a reform which affects them, as navigators, infinitely more than any other class of men.

9. Under the circumstances above briefly set forth, and more fully

explained in the documents appended, the Royal Society of Canada respectfully appeals to societies and associations of the mother-country interested in science, shipping, navigation or commerce, for an expression of their sympathy with the proposed unification of time-reckoning, and in the strong hope that they will be pleased to take such steps as they may deem advisable to influence the Home authorities in respect to its adoption, so that it may come into force on the first day of the new century.

On behalf of, and in the name of, the Royal Society of Canada,

JOHN GEORGE BOURINOT,
Honorary Secretary.

Then follow seven appendices. Their titles and the facts to be gathered from them are stated in the Memorandum, therefore it is unnecessary to repeat them here; but as the Memorandum gives only the sixth resolution, the substance of the others is given here.

I.—It is desirable to adopt a single prime meridian for all nations.

II.—The meridian of Greenwich proposed for adoption.

III.—That longitude shall be counted east and west from the initial meridian to 180°, and that east longitude should be plus, and west longitude minus.

IV.—A universal day, proposed for all purposes for which it may be found convenient, but not to interfere with the use of local or other standard time.

V.—That this universal day is to be a mean solar day, coinciding with the civil day of the initial meridian, and is to be counted from zero up to twenty-four hours.

The sixth resolution is given in, and is the subject of, the Memorandum. The seventh and last expresses the hope that the technical studies designed to regulate and extend the application of the decimal system to the measurement of angular space and time will be furthered.

Though the sixth resolution of the Washington Conference was passed unanimously by the several delegates, it has not escaped adverse criticism. The unification of nautical time with civil time may be considered as accomplished. Nautical time in the Royal Navy appears to have existed only in the log-book, and in that it was abolished by Admiralty order in 1805. Long before that date the journals directed to be kept by captains and other officers were kept in civil time. In the merchant service logs were kept in nautical time for many years after it had been discontinued in the Royal Navy, but the custom has now fallen into disuse.

The difference of opinion is on the unification of astronomical time with civil time. This involves for the seaman alteration in the teaching on the point in the class-books on navigation; for astronomers the giving up of the long-established mode of reckoning the day from noon to noon, and the adaptation of the ephemerides to the change. It appears that seamen are practically unanimous in their desire for the change, but there is not that agreement among astronomers.

It is stated in the Memorandum that the British Admiralty hesitates to adopt the change until complete unanimity on the part of the nations

publishing ephemerides is attained. The following extract from the fourth appendix will show the present state of the question :—

"The nations publishing ephemerides are, including Great Britain, nine in number, viz. :—Austria, Brazil, France, Germany, Great Britain, Mexico, Portugal, Spain, and the United States of America.

"Of these nine Powers, six have formally given their assent to the proposed change. The remaining three, while they have not signified assent, have not expressed dissent.

"The six nations formally assenting to the adoption of the recommendation of the Washington Conference on the 1st of January, 1901, are :—Austria, Brazil, France, Great Britain, Mexico, and Spain. Of the remaining three, Germany and Portugal have not, so far as is known, sent any reply. A brief communication has been received from the Secretary of State at Washington, simply stating 'that the members of the United States Naval Observatory are adverse to the "Canadian proposition," ' as they see fit to term it, and, at the same time, he sends a copy of the adverse report. This is the only report of a negative character which has been received, and it is the more surprising as this report is entirely at variance with the position taken by the United States throughout the movement for reforming the time-reckoning of the world during the last fifteen years."

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Rear-Admirals—H. L. Pearson to Command of Australian Station; C. P. Fitzgerald to be Second-in-Command in China. Captains—W. Wilson to "Anson"; E. P. Poë to "Active" as Commodore of the second class in command of Training Squadron; A. K. Bickford, C.M.G., to "Trafalgar"; G. F. King-Hall to "Edgar" for "Narcissus"; W. C. C. Forsyth to "Edgar"; C. G. Dicken to "Royal Arthur"; A. Barrow and R. S. Lowry to be Assistant-Directors of Naval Intelligence; R. W. White to "Vulcan"; Sir A. B. Milne, Bart, to "Venus"; H. L. F. Royle, D.S.O., to "Doris" and then "St. George"; G. Le C. Egerton, C.B., to "Doris"; G. M. Henderson to "Sirius." Commanders—F. C. D. Sturdee to "Porpoise"; Hon. A. E. Bethell to "Fearless"; H. E. P. Cust to "Rambler"; F. T. Hamilton to "Defiance"; R. C. Sparkes to "Linnet."

The first-class cruiser "Royal Arthur" has been commissioned to relieve the "Orlando" as flag-ship on the Australian station; Rear-Admiral Pearson, the newly-appointed Commander-in-Chief, will hoist his flag on board her and proceed in her to assume his command. The first-class cruiser "Edgar" has been commissioned to take out new crews for the third-class cruiser "Archer," the sloop "Linnet," and gun-boat "Peacock" to Hong-Kong; Rear-Admiral Fitzgerald, the newly-appointed Second-in-Command in China, has hoisted his flag in the "Edgar" and proceeds in her to Hong-Kong, transferring his flag to the "Grafton" on his arrival; after a most successful three hours' commissioning trial, when she averaged 19 knots, the "Edgar" left on the evening of the 4th for her destination. The second-class cruiser "Sirius" is commissioned to take out new crews for the "Fearless" and "Hebe" on the Mediterranean station. The third-class cruiser "Porpoise" is commissioned to relieve the third-class cruiser "Pylades" in Australia. The new second-class cruiser "Doris" is commissioned to take the place of the first-class cruiser "St. George" as flag-ship on the Cape station. The first-class battle-ship "Trafalgar," paid off at Portsmouth on the 12th and recommissioned next day to take the place of the second-class battle-ship "Inflexible" as port guard-ship, whose officers and men turn over to her. The first-class cruiser "Crescent," late flag-ship on the North American station, paid off at Portsmouth on the 15th ult. The new second-class cruiser "Venus" is to relieve the second-class cruiser "Cambrian" in the Mediterranean. The third-class cruiser "Pearl" has left for the West Indies.

The new first-class battle-ship "Cæsar," which has been built at Portsmouth and engined by Messrs. Maudslay, Sons, and Field, whose trials have been delayed by the strike in the engineering trade, carried out her eight hours' natural-draught trial in the Channel on the 7th ult. The weather was fine, the sea smooth, and the trial was in every way satisfactory, the contractors having an adequate staff of non-union men to perform the necessary duties. The maximum horse-power during the run was nearly 11,000, but the mean of the eight hours was 10,630, which was 630-H.P. over the contract, and with 96 revolutions gave the vessel a mean speed of 16·7 knots. The draught of the ship forward was 25 feet 9 inches and aft 26 feet 3 inches. The air pressure was 0·27 and the steam in boilers 148 lbs., the vacuum being 27

inches. The "Cæsar," which is sister-ship to the "Majestic," is similarly engined to the "Renown." On the 13th, she carried out in the Channel her four hours' forced-draught trial, which was highly satisfactory. The ship afterwards returned to Spithead. She drew 25 feet 7 inches forward, and 26 feet 4 inches aft. The steam in boilers was 147 lbs., and the vacuum 26·7 inches starboard, and 27 inches port, and the revolutions were 101 starboard, and 102·6 port. The mean pressure in the high-pressure cylinder was 63 lbs., in the intermediate cylinder 33 lbs., and in the low-pressure cylinder, 12 lbs. Under these conditions and with an air pressure in the stokeholds of 0·78 the engines developed a mean of 12,652-H.P., giving the ship a speed of 18·7 knots. At 11 a.m. on the 14th she left Spithead for the thirty hours' coal consumption trial, finishing on the afternoon of the following day, thus completing her steam trials; the contractors, Messrs. Maudslay, Sons, and Field, being able to carry out the whole of the trials without Government assistance and with their own workmen, in spite of the engineering dispute. The results of all the trials have been most satisfactory. On the run to the eastward she drew 25 feet 1 inch forward and 26 feet 3 inches aft, and the steam in boilers was 142·3 lbs. The vacuum was 26·3 inches starboard and 26·2 inches port, and the revolutions 87·86. There was no air pressure, and with 6,309-H.P. the mean speed was 14·8 knots. The coal consumption was 1·93 lbs. per unit of power per hour.

An Admiralty order has been issued directing two new war-sloops, designed by Sir W. H. White, to be laid down at Sheerness Dockyard. They are to have a length of 180 feet, a beam of 32 feet 6 inches, and a mean load draught of 11 feet 6 inches, with a displacement of 960 tons, and are to be fitted with engines of 1,400-H.P. under forced draught, with a speed of 13·25 knots, and 1,100-H.P. under natural draught, with a speed of 12·6 knots. Their armament will consist of six 4-inch and four 3-pounder Q.F. guns, and they are to be named the "Condor" and "Rosario."

The new first-class battle-ship "Canopus," was launched from No. 5, the only building-slip in Portsmouth Dockyard, on the 13th ult., Mrs. E. Rice, wife of the Admiral-Superintendent, performing the christening ceremony. The "Canopus" is the first of six new ships of her class, three of which are being built in the dockyards and three by private contract. Officially they are described as modified "Majestics" and improved "Renowns," but, though 2,000 tons lighter in displacement, they may really be described as improved "Majestics," as they carry nearly the same amount of armament, are a knot faster in speed, and their armour has equal resistance to the ships of the "Majestic" class. The "Canopus," designed by Sir William H. White, Director of Naval Construction, has the same length between perpendiculars as the "Majestic," namely, 390 feet, but the length over all in the "Canopus" is 418 feet, against 413 feet in the "Majestic." While the "Majestic" has a beam of 75 feet, that of the "Canopus" is only 74 feet, and the draught of the new type is 26 feet, as against a mean draught of 27 feet 6 inches in the "Majestic." The "Canopus" will be fitted with twin-screws, each driven by an independent set of triple-expansion engines, with three vertical cylinders, of the collective H.P. of 6,750, giving an aggregate I.H.P. of 13,500. The boiler safety valves will be loaded to a pressure of 300 lbs. per square inch, the steam pressure being reduced to 250 lbs., per square inch at the engines. With this power it is anticipated that a speed of 18½ knots will be attained, and as the vessel has a bunker capacity of 1,900 tons her coal consumption trials will be awaited with some interest. For the first time Belleville boilers are to be used in battle-ships, and the "Canopus" will carry twenty of these steam generators, each boiler being so fitted that it can be used independently.

The disposition of the protective armour is similar to that of the "Majestic"

class, with certain modifications, as it will combine the advantages of the turtle-back decks of the modern cruisers with the citadel armour of previous battle-ships. As in the cruisers of the "Andromeda" class, the "Canopus" will have two protective decks, the one protecting the vital parts of the ship extending from end to end, and having a thickness varying from 3 inches to 2 inches, while the main deck will also be made of steel, of two ½-inch thicknesses. The belt armour, which is 9 inches thick in the "Majestic," is only 6 inches in the "Canopus," advantage having been taken of the recent improvements in hardening steel, but the casemates are to be 6 inches thick, as in the "Majestic"; and the barbettes are protected with plates from 10 inches to 12 inches in thickness. From the belt to the bows there will be a 2-inch nickel steel protection instead of the 9-inch wood planking in the ships of the "Majestic" class. By this arrangement not only are light projectiles resisted, but great support is given to the ram, which is higher up than in the "Majestic," being only 7 feet or 8 feet below the water, and thus in a position to strike the enemy immediately below the belt without giving too forcible a shock to the ship in striking. The two steel masts will each carry a fighting top, mounted with three 3-pounder Q.F. guns, and provided with the necessary magazines and equipment, and above the fighting top an electric light platform will be fitted for working powerful search-lights. The maintopmast will be fitted with a semaphore for long-distance signalling, and the topmasts will be so arranged that they can be readily lowered and housed when at sea or in action.

With regard to the masthead semaphore, it is satisfactory to know that the problem of long-distance signalling has been solved. Recently, when the Channel Squadron left Gibraltar the "Prince George" was detained, with instructions to follow on the next day. A look-out was kept on board the "Majestic," and when only the masthead of the "Prince George" appeared on the horizon it was possible to read her semaphore signals distinctly. A steel derrick, 65 feet long, will be fitted on the mainmast of the "Canopus" for lifting the heavy boats into their positions on the skid beams, and on the foremast a wood derrick will be fitted for lifting the lighter boats. Temperley's patent transporters will be supplied with these derricks for coaling purposes. The "Canopus" will carry sixteen boats, including three steamboats, two of which will be capable of acting independently of the ship for purposes of torpedo attack. These boats will be so fitted that they can discharge 14-inch Whitehead torpedoes, and one of them will also carry the spar torpedo.

In the "Canopus" the main armament consists of four 12-inch wire guns and the auxiliary armament of twelve 6-inch Q.F. guns. So far the "Majestic" and "Canopus" are armed alike, but while the "Majestic" has eighteen 12-pounder Q.F. and twelve 3-pounder Hotchkiss guns, the "Canopus" carries only ten and six respectively of these weapons. In their lighter armament and in torpedoes the two classes present no difference. The 12-inch guns will be carried in pairs in two circular armoured redoubts at either end of the ship; the 6-inch guns will be mounted in casemates, eight on the main deck and four on the upper deck and protected by 6-inch Harveyized armour. The ten 12-pounder guns will be mounted on the main and upper decks, the 3-pounders in the military tops, two 12-pounder 8 cwt. guns on the forward shelter deck, and the Maxims will be fought from the bridges or boat decks. Six search-light projectors, worked by three dynamos, each of 600 ampères and 80 volts, will be carried. The vessel will be fitted with the latest system of net defence. Though the ship will be lighted throughout by electricity, Colomb's lights will be fitted for use should there be a breakdown of the electric current. Eight electrically-driven fans will be fitted for the purpose of ventilating the working and living spaces, and two steam fans for ventilating the engine-rooms and six steam fans for the boiler-rooms will also be supplied. On completion the "Canopus" will be commissioned with a complement of 750 officers and men.

Two armour plates, manufactured by Messrs. Cammell and Co., of Sheffield, were tested last month on board the "Nettle," target-ship, at Portsmouth, in the presence of Sir William H. White, Director of Naval Construction, Captain W. H. May, commanding the "Excellent" Gunnery School; Captain J. R. Jellicoe, representing the Admiralty; and Sir Alexander Wilson, representing the contractors. The first plate tested was 6 inches thick, with a superficial area of 8 feet by 6 feet, backed in the usual manner. At a range of 30 feet the plate was fired into five times with a 6-inch breech-loading gun, the 100-lb. Holtzer forged steel armour-piercing projectile being used in each case. The penetrations ranged from $2\frac{1}{8}$ inches to $2\frac{3}{4}$ inches, but as no cracks were developed the plate was capable of resisting five more projectiles under the same conditions. In each case the velocity was 1,960 foot-seconds, and the projectiles were broken into small pieces. The second plate was 4 feet square and 4 inches thick, against which three rounds were fired from a 5-inch breech-loading gun, the projectile weighing 50 lbs. At the first round the projectile had a striking velocity of 1,400 foot-seconds, and at the other rounds of 1,750 foot-seconds. At each round the projectile splashed on the face of the plate, and while the shells were pulverised the plates were only scratched. No cracks were developed, and, as the plate was apparently uninjured, the results in both cases were regarded as highly satisfactory.—*The Times* and *Naval and Military Record.*

A successful official trial of a Vickers 6-inch Q.F. gun and mounting took place on board the "Pincher," gun-boat, at Portsmouth, on the 21st ult., in the presence of representatives of the Admiralty and War Office. Captain W. H. May, commanding the "Excellent," was in charge of the trial, and the contractors were represented by Mr. T. E. Vickers, chairman of the company; Mr. Albert Vickers, managing director; Lieutenant A. T. Dawson, R.N., Superintendent of Ordnance Works and director of Vickers, Sons, and Co., of Sheffield; and Mr. James Dunn, director and chief constructor at the Naval Construction Works. This trial was of considerable public interest, as the equipment was characterised by many novel points originated by Messrs. Vickers, who are extending their works for the manufacture of ordnance generally, as well as for the production of armour plates and every warlike store necessary for the equipment of battle-ships, cruisers, and other vessels of war. The special introduction of a new type of Q.F. gun is principally necessitated by the great increase in power which has recently taken place in the Q.F. guns of other nations, and it was considered desirable by the Admiralty that such a type of high-power gun should not make use of the ordinary type of metallic cartridge case for holding the charge. Trials were therefore considered necessary with a view of obtaining the highest-powered type of heavy Q.F. gun embodying a special type of obturation not necessitating metallic cartridges.

The gun tried was of 45 calibres length of bore, and weighed 7 tons 8 cwt. Steel wire and long tubes form important elements in the construction of this gun, which is specially strengthened in the chase to withstand the somewhat higher chase pressures necessitated by the greater energies required. A very important part of the construction is that relating to the breech end of the gun, which is closed by a screw of novel design, by which considerable saving in the weight of both the screw and the gun is obtained without any loss of effective resisting power of the screw, whilst the efficiency of the gun is increased. The mechanism by which the breech is closed is of novel design, and its characteristic features are the arrangements whereby great powers are obtained for working the usual system of obturation by the single movement of a horizontal lever without the semblance of any complication, and its action is such as not to necessitate a large space in working. In combination with this system of breech screw and mechanism a new type of apparatus for working the firing primer is arranged, all its functions being worked automatically. The firing primer is

placed in the vent with the breech open, and when the breech is closed the slide automatically covers the tube, rendering it safe until the mechanism is securely locked. Then when the breech is opened the primer is automatically ejected, and thus no time is lost in loading owing to the priming of the gun. The mounting of this gun is in appearance very compact, and could be easily and quickly applied with little constructional alteration for the purpose of rapidly armouring our large mercantile fleet, should occasion demand. The gun is made to slide in a cradle bored eccentrically in such a manner as to give the necessary strength for the transmission of the recoil, whilst the thinner part forms a cover to prevent dirt from getting between the rubbing surface, as well as to offer greater protection to the gun. The cradle is mounted on trunnions resting in trunnion bearings which are so arranged that the gun can be easily and quickly housed inboard. The trunnion bearings are in the form of caps and rest in the top-carriage. The top-carriage is of very strong design, and the lower part is in the form of a long sleeve, which is dropped over the pivot and balanced on a small ball bearing at the centre and top of the pivot, and placed in such a manner that the balls can be easily got at and adjustments made if desirable. The pivot on which the mounting revolves is hollow, and very strong for its weight. The lower part is flanged in such a manner as is to offer a large deck surface to take the downward strains at the time of firing. The design gives great elasticity, and should the mounting be struck the thick sleeve of the top-carriage gives additional protection to the pivot as well as to the training rack and worm. The elevating and training arrangements are simple, and embody novelties in design. From the ease in working they appeared satisfactory. The sighting arrangements of this mounting, which are new and original, embody special patents belonging to Messrs. Watkin, Grenfell, and Cook. A range-indicator and sighting telescope form an important alteration from the usual sighting arrangements, which in a gun of such high power are of utility.

Messrs. Vickers, having received Government approval for the trial of this gun and mounting in December last, manufacture was immediately proceeded with and the necessary private trials conducted, after which the gun was handed over to the Government for proof at Woolwich in July. Thus Messrs. Vickers were able to produce an entirely new design of gun in seven months. The proof of this gun was in every way satisfactory, a velocity of 2,784 foot-seconds being obtained at the last round of firing for a pressure of 15·9 tons. The gun was then forwarded to Shoeburyness, and a series of preliminary trials carried out on an old service type of 8-inch mounting, to prove generally the efficiency of the mechanism, and whether a satisfactory rate of fire could be obtained. Under the disadvantageous system of mounting a rate of fire of one round in ten seconds was obtained, and as the striking energy at each round of this gun was 5,374 foot-tons, as against 3,231 foot-tons in the existing service weapon, the rate of fire was considered satisfactory. The trials which took place yesterday were then ordered—of the complete equipment of the gun and mounting in the "Pincher." Preliminary rounds were fired to test the mounting at various angles of elevation, two rounds being fired at the horizontal, and rounds were also fired at extreme elevation and extreme depression. In all 110 rounds were fired, representing more than half a million foot-tons of energy, the rounds being fired in series of varying numbers. The best series gave one round in 9½ seconds, while twenty rounds were fired unaimed in 214 seconds. Another series of thirty-six unaimed rounds were fired with great rapidity without any difficulty, the breech mechanism working easily and quickly throughout the whole series. Twenty aimed rounds were fired at two targets in 259 seconds, and the shooting during the series was excellent, the breech mechanism and equipment generally working without a hitch. In the evening the "Pincher" returned to harbour.—*The Times.*

FRANCE.—The following are the principal appointments which have been made: Capitaines de Vaisseau—N. Kiésel to "Hoche"; M. De Fauque de Jonquière to "Amiral-Tréhouart." Capitaine de Frégate—F. G. Schilling to "Ibis."

Vice-Admiral Barrera, the new Commander-in-Chief of the Northern Squadron, hoisted his flag in succession to Vice-Admiral Parrayon on board the "Hoche," at Brest, on the 15th ult.; it is now unlikely that his new flag-ship, the "Masséna," will be ready before the middle of next year for commissioning, as she is not yet ready to receive her heavy guns, and many of the tubes of her boilers are being changed; it is further stated that her cabin accommodation is very bad, and that in consequence of the peculiar build of the ship most of the cabins in summer will be unbearable, as the rays of the sun will beat flat down on top of them. Vice-Admiral Humann hoisted his flag on the 15th ult. on board the "Brennus," at Toulon, as Commander-in-Chief of the Active Mediterranean Squadron, in succession to Vice-Admiral Cavelier de Cuverville. Rear-Admiral the Marquis de Courthille, second in command of the Squadron of the North, is to be succeeded, when he completes his period of service in February next, by Rear-Admiral E. Maréchal, at present head of the Hydrographical Department.

The First Division of the Squadron of the North, consisting of the first-class battle-ship "Hoche" (flag-ship of Commander-in-Chief), the coast-defence battle-ships "Jemmapes" and "Valmy," the first-class armoured cruiser "Dupuy de Lôme," the second-class cruiser "Friant," torpedo-cruiser "Épervier," and the torpilleurs-de-haute-mer "Salve" and "Ariel," is to winter at Brest; while the Second Division, consisting of the coast-defence battle-ships "Bouvines" (flag of Rear-Admiral) and "Amiral-Tréhouart," the first-class armoured cruiser "Amiral-Pothuau," the third-class cruiser "Surcouf," the torpedo-aviso "Cassini," and the torpilleur-de-haute-mer "Aquilon," winters at Cherbourg.

The interest aroused by the accident to the cruiser "Bruix" shows no signs of abatement, and an endeavour is being made by the French Press to fix the responsibility for the acceptance of the defective piston-rod on the "Service de surveillance." An official note has stated that the flaw found in the metal was absolutely invisible on the exterior surface, and that no blame attaches to any of the inspectors. It is pointed out, however, that though invisible on the surface, as the piston-rod is hollow the core having been bored out, the borings if examined would have revealed the real state of the metal, much in the same way as the borings of an auger show whether the wood pierced by the tool is in a sound condition.

In accordance with the scheme of new constructions two destroyers, to be named the "Pique" and "Épée," are to be constructed at La Seyne. Their displacement will be 303 tons, length 182 feet, beam 19 feet 6 inches. They are to have triple-expansion engines of 5,700-H.P. and multitubular boilers, the estimated speed being 27 knots. The armament will consist of one 6-pounder and six 3-pounder Q.F. guns and two torpedo-tubes. The radius of action will be 2,300 miles at 10 knots and 217 miles at full speed. The cost of each vessel will be 1,737,729 francs.

Some important modifications are to be made in the first-class cruiser "Sfax," at present in the dockyard hands at Brest. She was originally fitted with three masts, each fitted with a fighting top, but now the mainmast is to be removed altogether, the lower portion to just above the upper deck being left to serve as a ventilator; the fore and mizen masts are also to be cut down to the upper deck and pole masts for signalling purposes only to be substituted. The coal supply of 600 tons is to be increased to 715 tons, which will give the ship a radius of action of 5,000 miles at 10 knots. The small guns mounted previously in the tops will be distributed about the upper deck; three of the five torpedo-tubes are to be done

away with, but no other change is to be made in her armament. The work of re-arming the coast-defence battle-ship "Requin" has been taken in hand at Cherbourg; her 34-centimetre (13·3-inch) guns are to be replaced by guns of 27·4 centimetres (10·8 inches), some of her armour is to be removed, and the ship is to be modernised as much as possible so as to transform her into an up-to-date battle-ship. Her displacement is 7,200 tons, and she was launched in 1885. The "Furieux" and other vessels of this class are to be treated in a similar manner.

The new second-class cruiser "Cassard" has made a successful full-speed trial at Cherbourg, the engines developed 10,143-I.H.P., being 643-H.P., over the contract, with 137·8 revolutions, which gave the ship a mean speed of 19·8 knots during the four hours' run; the coal consumption per horse-power per hour was 0·876 kilogramme. The last trial of the "Du Chayla," another ship of the same class, was not so successful, as the engines only developed 8,900-I.H.P., instead of the contract horse-power of 9,500.

The new second-class cruiser "Catinat," built at the "Forges et Chantiers de la Méditerranée," at Havre, arrived at Cherbourg on the 22nd ult. for her trials; she is intended for service on foreign stations, and is a sister-ship to the "Descartes," but with some improvements. The new first-class torpedo-boat No. "204" has completed her trials successfully at Cherbourg, attaining a mean speed during a three hours' run at full speed of 25·9 knots. She was constructed and designed by M. Normand, at Havre.

The cruiser "Chasseloup-Laubat," which has just completed her stability experiments at Cherbourg, has been ordered to Brest for comparative speed trials with the cruiser "Friant" of the same class, before having her bilge keels fixed. After the trials the "Chasseloup-Laubat" will return to Cherbourg.

The new first-class battle-ship "Charlemagne" was commissioned on the 15th ult. for her trials; the ship was commenced on the 30th September, 1893, and launched two years afterwards, but she is still a long way from being ready for sea, as neither the heavy armour for her turrets nor her heavy guns will be ready for delivery at the earliest before the latter part of next year, and may not be delivered possibly until well into 1899. Her sister-ship the "Gaulois," in spite of the rapidity with which work on board her is being pushed forward, will be similarly delayed, as in her case the turret armour and guns will not be ready until the beginning of 1900. The *Yacht* very naturally complains of this want of foresight on the part of the authorities, when ordering the armour and guns, which will cause these two fine ships to remain for a year or 18 months, perhaps longer, of no fighting value, although in other respects they will be ready for sea.

To assist in providing funds for the programme of new constructions, it has been decided to dispose of by sale any Government properties which can be spared for this purpose without detriment to the Service, and the different departments have been ordered to prepare lists accordingly. As regards the Naval Department, the following properties are to be put up for sale:—

Cherbourg.—The garden of the Infanterie de Marine.
Brest.—The cove of Kerhuon.
Rochefort.—The meadows of Martrou and the Botanical Gardens.
Nantes.—Buildings on the Quay Renaud.
L'Orient.—The old rope-walk.
Bayonne.—The old arsenal.
Bordeaux.—A piece of ground at Bacalan.
Toulon.—A house at the corner of the Rue de l'Intendance.
Indret.—The small islands outside Indret.
Guérigny.—Several pieces of land.

The value of the above properties is estimated at 2,500,000 francs.

The first-class cruiser "Guichen," built as a commerce-destroyer, was successfully launched from the building-slip of the "Société des Ateliers et

Chantiers de la Loire" at St. Nazaire, on the 26th ult. Her dimensions are as follows:—Length, 436 feet; beam, 54 feet 10 inches; maximum draught, 24 feet 6 inches, with a displacement of 8,277 tons. She will be provided with 36 water-tube boilers of the Lagrafel and D'Allest type, divided into six groups, placed before and abaft the machinery; the total grate surface will be 163 square metres; the heating surface 4,692 square metres. She will be fitted to burn either coal or petroleum fuel; and pulverisers will be fitted for the petroleum when it is used in conjunction with the coal. The ship will be driven by three screws, and the engines are to develop 23,670-I.H.P., giving a speed under forced draught of 23 knots, with a coal consumption of 160 kilogrammes per square metre of grate surface; under natural draught the engines are to develop 14,500-I.H.P., giving 105 revolutions, with a coal consumption not exceeding 0·87 kilogramme per H.P. per hour, during a twenty-four hours' run; and it is expected that a speed of 20 knots will be easily maintained. The ship is built of steel, but she is to be wood-sheathed and coppered; there is an armour turtle-back deck 2·3 inches thick, and a cofferdam running right round the ship, to be filled with cellulose or some similar substance. The armament will consist of two 6·4-inch, six 5·5-inch, and ten 1·8-inch guns—all Q.F. The only protection for the 6·4-inch guns will be 2-inch shields of chrome steel; but there will be a conning tower protected by 6-inch Harveyized steel armour, and communicating with the armoured deck by an armoured tube of similar thickness, and the six 5·5-inch guns will be in casemates, also protected by 2-inch chrome steel. There are no torpedo-discharges.

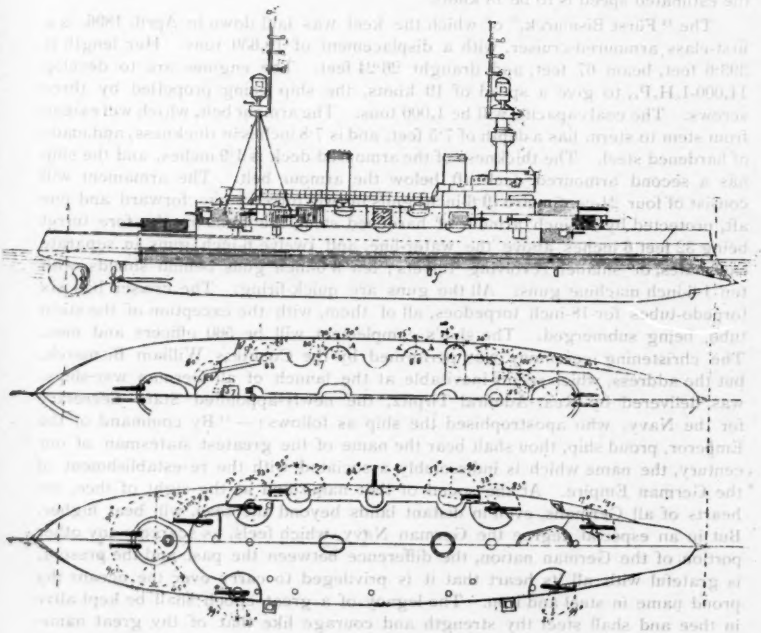
On the 27th inst. the new third-class cruiser "D'Estrées" was launched at Rochefort. She is 308 feet 6 inches long, with a beam of 39 feet; a mean draught of 16 feet 4 inches, and a displacement of 2,450 tons. Her engines are to develop 8,500-I.H.P., giving a speed under forced draught of 20·5 knots. The armament will consist of two 138-millimetre (5·5-inch), and four 100-millimetre (3·9-inch) Q.F. guns, with eight 3-pounder Q.F. guns. Her cost will be 5,205,000 francs, and she is to be completed in 1899, having been laid down in July of last year. She is built of steel, but is to be wood-sheathed and coppered, as she is intended for service on foreign stations.

The torpedo-aviso "Dunois" was launched at Cherbourg on the 12th ult. She was laid down in March of last year, and is the first of her type to be fitted with Normand water-tube boilers. Her dimensions are:—Length, 241 feet; beam, 27 feet 6 inches, with a displacement of 890 tons. The engines are to develop 6,400-I.H.P., giving a speed of 22·5 knots; the coal stowage will be 137 tons, giving a radius of action of 5,000 miles at 10 knots, and 560 miles at full speed. Her armament will consist of six 6-pounder and six 3-pounder Q.F. guns, and she will have no torpedo equipment.

It will be interesting to seamen and soldiers alike to know the origin of the lighthouse of Eckmühl recently erected at Penmarch on the coast of Brittany at the expense of the late Marquise de Blocqueville. Madame de Blocqueville was the last surviving child of Marshal Davout, Prince of Echmühl and Duke of Auerstaedt, and by her will she left a sum of 300,000 francs for the erection and endowment of a lighthouse in memory of her distinguished father. The light-house was formally handed over to the Inspector-General of Lighthouses on 17th October by M. Le Myre de Vilers, executor of the will of the late marquise. The terms of the will, which are as follows, were read on the occasion:—"I should like the lighthouse of Eckmühl to be erected on a suitable spot on the coast of Brittany on solid granite ground, as I wish that this noble name should long be blessed. The tears shed by the ravages of war, which I dread and detest more than ever, will in this way be redeemed by lives saved from the tempest." A marble tablet built into the masonry bears the following inscription:—"This lighthouse has been raised to the memory of the Marshal Prince of Eckmühl, by the filial piety of Napoleon Louis Davout, duc d'Auerstaedt, Prince of Eckmühl,

his only son, who died without issue, and by his daughter Adélaide Louise d'Eckmühl, Marquise de Blocqueville, who also deceased without issue. My well-beloved brother and myself, both equally unfortunate in life, remain united in memory; those who understand this sad thought will pray for us."—*Le Temps* and *Le Yacht*.

GERMANY.—Want of space prevented last month any notice being given to the two important additions which were made to the Imperial Navy in September by the launch at Stettin on the 14th of that month of the first-class battle-ship "Kaiser Wilhelm II.," and at Kiel on the 26th of the armoured first-class cruiser "Fürst Bismarck." The Emperor was not present at either launch, but his brother, Rear-Admiral H.R.H. Prince Henry of Prussia, performed the christening ceremony of the "Kaiser Wilhelm II.," and he addressed the ship in the following characteristic manner:—"I bid thee heartily welcome, thou proud structure. Thou art a product of the human mind, and thou settest forth on thine exalted



Profile and deck plans of "Kaiser Wilhelm II."

mission to strengthen the sea power of Germany in the foremost line of battle. For thy birth the German people have to thank the German Emperor, who, gazing with clear vision into the future, is untiringly active in the endeavour to secure the honour of the German nation on the seas. In truth, a lofty and a noble aim! Strong with a strength that is unsurpassed on land, able to defend itself on sea—it is thus that the Emperor would have the German Empire stand forth in independent stability. Thou shalt be a memorial for coming generations, a record of

the development of our Navy. Thou shalt, therefore, from this day bear a name the honour of which belongs by right to the German fleet. I know that the Navy is at one with me in rejoicing over this exalted name, which thou shalt henceforth bear in honour—that name which is our battle-cry and our cry in death—'Kaiser Wilhelm II.'"

The "Kaiser Wilhelm II." is the sister-ship of the "Kaiser Friedrich III.," which was launched on July 1st, 1896. She is built entirely of German steel, and her dimensions are as follows:—Length, 377 feet 4 inches; beam, 67 feet; and with a mean draught of 25 feet, a displacement of 11,130 tons. Protection is afforded by a 11·8-inch water-line belt of hardened steel, tapering forward to 6·4 inches, which extends from the ram aft for three-fourths the length of the ship, with a depth of 6·5 feet; the turrets for the heavy guns have 9·8-inch armour also of hardened steel, while the guns of the secondary battery are protected by 6-inch armour. The armament consists of four 24-centimetre (9·4-inch), eighteen 15-centimetre (5·9-inch), twelve 8·8-centimetre (3·3-inch), and twenty small and machine guns, all quick-firers, with six torpedo-tubes, five of which are submerged. The engines are to develop 13,000-I.H.P., driving three screws, while the estimated speed is to be 18 knots.

The "Fürst Bismarck," of which the keel was laid down in April, 1896, is a first-class armoured-cruiser, with a displacement of 10,650 tons. Her length is 393·6 feet, beam 67 feet, and draught 26·24 feet. The engines are to develop 14,000-I.H.P., to give a speed of 19 knots, the ship being propelled by three screws. The coal capacity will be 1,000 tons. The armour belt, which will extend from stem to stern, has a depth of 7·5 feet, and is 7·8 inches in thickness, and made of hardened steel. The thickness of the armoured deck is 1·9 inches, and the ship has a second armoured deck aft below the armour belt. The armament will consist of four 24-centimetre (9·6-inch) guns in two turrets, one forward and one aft, protected by 7·8-inch armour of hardened steel, the guns in the fore turret being 32 feet 6 inches above the water-line, and twelve 6-inch guns in separate casemates, or smaller revolving turrets; ten 3·6-inch guns behind shields, with ten 1·6-inch machine guns. All the guns are quick-firing. The cruiser has six torpedo-tubes for 18-inch torpedoes, all of them, with the exception of the stern tube, being submerged. The ship's complement will be 560 officers and men. The christening ceremony was performed by the Countess William Bismarck, but the address, which seems inevitable at the launch of all German war-ships, was delivered by Rear-Admiral Tirpitz, the newly-appointed State Secretary for the Navy, who apostrophised the ship as follows:—"By command of the Emperor, proud ship, thou shalt bear the name of the greatest statesman of our century, the name which is indissolubly associated with the re-establishment of the German Empire. At the sound of that name and at the sight of thee, the hearts of all Germans, even in distant lands beyond the seas, will beat higher. But in an especial degree the German Navy, which feels, as scarcely any other portion of the German nation, the difference between the past and the present, is grateful with all its heart that it is privileged to carry over the oceans thy proud name in steel and iron. The legacy of a great epoch shall be kept alive in thee and shall steel thy strength and courage like that of thy great namesake for unwearying endeavour in purposeful toil. Glide forth, therefore, into thine element, attended by the cry which makes the heart of all Germans beat higher in prosperity as in adversity—'The Kaiser, Hurrah! hurrah! hurrah!'"

The First Division of the manœuvre fleet, consisting of the first-class battle-ships "Kurfürst Friedrich Wilhelm" (flag-ship of Vice-Admiral Thomsen), "Brandenburg," "Wörth," and "Weissenburg," and the despatch-vessel "Jagd," have taken up their winter quarters at Wilhelmshaven. The Second Division, which has been reconstituted, will winter at Kiel. The division now consists of the third-class battle-ships "Baden" (flag-ship of Rear-Admiral Bendemann), "Sachsen," "Würtemberg," and "Oldenburg," and the despatch-vessel "Greif." The

gunnery training-ship "Blücher" has been paid off at Kiel to have some alterations made in her torpedo-fittings; among other changes, two new torpedo-discharges are to be fitted.—*Neue Preussische Kreuz Zeitung* and *Mittheilungen aus dem Gebiete des Seewesens.*

THE AUTUMN MANŒUVRES OF THE GERMAN FLEET, 1897.

A *Précis* translated from the Account of the SPECIAL CORRESPONDENT of the *Neue Preussische Kreuz Zeitung* on board H.I.M.S. "Blücher."

In accordance with the Imperial command and the orders of the German Admiralty, the fleet, consisting of twenty-eight ships and vessels of the Navy, not including torpedo-boats, assembled in the Neufahrwasser on the 15th August, under the command of Admiral Knorr, who, with his staff, was embarked on board the torpedo school-ship "Blücher." The fleet was formed into two squadrons, each consisting of two divisions of battle-ships, with cruisers, and a torpedo flotilla, and in addition there was a special division, consisting of four armoured gun-boats, and the two school-ships "Stein" and "Charlotte." The latter ships were only to remain a short time with the fleet, as they could not be spared from their more important duties of instructing the cadets.

The fleet was constituted as follows:—

First Squadron under command of Vice-Admiral Thomsen.

First Division—

First-class battle-ships—"Kurfürst Friedrich Wilhelm" (flag-ship of Commander-in-Chief), "Brandenburg," "Weissenburg," "Wörth."

Despatch-vessel—"Jagd."

Second Division—

First-class armoured cruiser—"König Wilhelm" (flag-ship of Rear-Admiral H.R.H. Prince Henry of Prussia).

Third-class battle-ships—"Sachsen," "Würtemberg."

Despatch-vessels—"Greif," "Blitz."

Second Squadron under command of Rear-Admiral Hoffmann.

Third Division—

Fourth-class battle-ships—"Hildebrand" (flag-ship), "Siegfried," "Beowulf."

Despatch-vessel—"Pfeil."

Fourth Division—

Fourth-class battle-ships—"Hagen" (flag-ship of Rear-Admiral von Arnim), "Heimdall," "Frithjof."

Despatch-vessel—"Grille."

Fifth Division—

First-class armoured gun-boats—"Mücke," (Senior Officer, Corvette-Captain Paschin), "Natter," "Skorpion," "Krokodil."

First torpedo-boat flotilla—Division-boat D "2" (flying Senior Officer's Pennant of Corvette-Captain Poschmann).

A Division—D "9," Nos. "74," "76," "77," "78," "79," "80."

B Division—D "3," Nos. "24," "25," "26," "27," "28," "29."

Second Flotilla—Division-boat D "1" (flying Senior Officer's Pennant of Corvette-Captain von Colomb).

C Division—D "4," Nos. "33," "34," "35," "36," "38," "40."

D Division—D "8," Nos. "67," "68," "70," "71," "72," "73."

The third-class cruiser "Gefion," the training-ships "Stein" and "Charlotte," and gunnery school-ship "Carola" were also attached to the fleet.

The following programme was laid down by the Admiralty:—After the assembly of the fleet on the 15th August, the first squadron on the two following days would be exercised at firing practice as for action, under the eyes

of the commander-in-chief, whilst the second squadron would be exercised in tactical manœuvres in close order. The gun practice this year was to be of an especially instructive order, a Norwegian bark having been purchased for employment as target, and fitted up so that the effects of the fire might be observed similarly to what might be expected on a modern battle-ship. On the 18th and 19th, evolutions by the whole fleet were to be carried out in Dantzic Bay. From the 23rd to the 25th, day and night manœuvres of different kinds were to be carried out in the open sea, and then the following two days would be occupied by the run in fighting order to Kiel, where two days' leave would be given. During the following week tactical exercises in the western part of the Baltic would be carried out, and on the 4th September the fleet would fill up with coal. On the 7th September the squadrons would proceed through Danish waters to the North Sea and Wilhelmshaven, performing various evolutions and steam tactics on the way. Here the fleet would again complete with coal, and on the 16th September leave for further evolutions in the North Sea, which would last till the 21st. On the 22nd the fleet would return to Wilhelmshaven and be broken up.

In the foregoing programme it is easy to picture the zeal with which every officer and man of the fleet would enter into his duties and endeavour by making the most of his opportunities for self-instruction to compensate in some manner for the lack of quantity in our floating material. The German people have always acknowledged the claims of our land forces on their sympathies and help, and borne the burden imposed upon them in this respect willingly; the results of the Franco-German war showed conclusively the justice of this tax on the country. May also now the interest in our Navy as an integral part of the nation's forces gain ever a stronger hold on our people, and may every German confess that a nation which stands second to England in the greatness of her foreign trade must also possess the means for the protection of that trade in case of necessity! Admiral Knorr's flag was hoisted with the customary ceremonies on the "Blücher" on the 15th, and the above programme was punctually commenced. The lack of suitable material for look-out and exploring purposes was at once felt. There was only one cruiser worthy of the name in this group, and the old "Carola" acted as leader—a corvette without speed or military importance, and absolutely worthless. The avisos alone are not fitted for extensive scouting service; they are weak and feebly armed, and must give way to every stronger ship; every cruiser of the enemy would drive them back. They must, therefore, have a support of stronger cruisers, otherwise they cannot fulfil their task; they only serve to draw the enemy on, and to discover the whereabouts of their own fleet. How are we prepared, then, with modern cruisers fit for this service? We have, all told, only four. Two of these are in Asiatic waters, one is at Crete, and the other in reserve is employed in the manœuvres as above mentioned. The matter lies in a nutshell; the conditions are so simple and self-evident; the development of our cruiser fleet must go hand in hand with the building of our battle-ships.

The manœuvres on the 16th August consisted of tactical exercises to test the capabilities of the various officers commanding the ships, and the admiral was thoroughly satisfied with the high grade of efficiency attained by the officers under his command. In the afternoon the first torpedo-boat flotilla was exercised in close formation, and to the layman it was really marvellous to see these little craft executing intricate manœuvres at such high speed with the bows of each literally hanging on to the stern of her leader. On the 18th the "Charlotte" and "Stein" joined the fleet to assist in carrying out the duties of observation and scouts till the beginning of October, when they commence their six-monthly voyage to the Mediterranean. On the 17th the squadron was exercised at gun practice under way, the range being kept clear by the torpedo-boats. The hulk which served as target had a superstructure with conning towers, bridges, etc., built up to represent a battle-ship with a row of dummies for the crew as especial mark for small arms. Unfortunately, the hulk was so quickly

riddled that she sank to the level of the upper deck, and was only prevented from foundering by the baulks of wood with which she had been stowed. The firing was directed on the target partly at large angles of training and partly directly on the broadside. The lesson we learn from the effect of the new artillery is, that the older battle-ships both for offence and defence are practically useless. In this condition would be the "König Wilhelm," flag-ship of H.R.H. Prince Henry; the whole crew would be simply lost without any chance of defending themselves if the modern enemy chooses to keep at a proper distance, and this is absolutely at his own choice. Not only the "König Wilhelm," but the whole of the ships of the "Sachsen" class, and the half of the squadrons which form the flower of our naval strength, is in the same predicament, although their defensive strength is somewhat greater than that of the "König Wilhelm." The value of the ships under consideration, however, as regards speed and armament, is so little that they could be put out of action by those actually on service in the Navies of our neighbours without the possibility of our doing them any material injury. We quote the memorable words of Prince Bismarck:—"If we are obliged to stake the blood of our people against our enemies in the field, then are we also bound to provide them with the best weapons of offence and defence which money can procure." On the 18th, similar manœuvres were carried out at higher speeds with very satisfactory results so far as the efficiency of the *personnel* was concerned, but the movements of the newer ships were seriously crippled by the want of speed in the older ships. Our pride and joy in the excellence of the tactical skill displayed by our officers and men is again overclouded by the thought that the results which we could reasonably expect from the toil and care expended in their instruction cannot be guaranteed, through the worthlessness of a good part of the material with which they have to work. During the manœuvres a thick fog came on, but notwithstanding this the drill for "man overboard" was carried out. A buoy was dropped to represent the man, the ship fired two shots and sounded her syren, went astern with the engines to bring the ship to a standstill, the boats were lowered, and the buoy recovered. The day's exercises ended at 5.30 p.m., those of the day before not until 9.30 p.m. On the 19th there were two attacks carried out at night by the torpedo-boats, but although the attacks were delivered with judgment and dash the boats were discovered by the look-out ships, and immediately brought under the electric lights and the fire of the fleet. The sight was most picturesque, and it seemed a great pity that it should have to be carried out at sea and under the eyes of so few spectators. During the day's exercises the "Beowulf" broke down through defects in her boilers, which were known to be in want of repairs, and she left for Kiel in the evening for the work to be carried out.

In the afternoon next day a storm of wind and rain came on, and special attention was given to the lightning conductors, especially with regard to their water contacts. At 10 p.m. there was another attack by the torpedo-boats on the fleet, the boats having been previously detached for the purpose. The weather conditions were quite different to those of the previous day; a cloudy sky, thick rain, and the darkness made the discovery of the boats more difficult, and also increased the difficulty in manœuvring them. The attack was again repulsed successfully, and the contrast between the stillness and darkness which followed the noise and bustle and the glare of the electric lights on the falling rain was most striking. On the 20th August the fleet returned to Neufahrwasser to complete with coal, the smaller ships alongside the wharf, the other by lighters and steam tugs; one part of the fleet only coaled at one time and then left to make room for the other. The order to mobilise was received on the night of the 19th-20th; the observing stations on the coast at the same time were placed on the alert. The enemy, represented by the "Carola," "Stein," and "Charlotte," under the command of Captain von Malzahn, acted independently. His task was to discover the position and strength of the manœuvring fleet and, if

possible, to disturb their preparations. For this task he was severely handicapped, his leading ship, the "Carola," only having a speed of 12 knots, against the 20 to 24 which might be expected of a modern cruiser. German coals only were used by the fleet in the interest of the home trade. This coal is very unsuitable from the large amount of smoke which it emits, and from the English point of view is for war-ships altogether impossible. The experience of these manœuvres gave ample opportunity to emphasise the convictions of the great disadvantages which would attach to the fleet using this inferior material :—1. Betrayal of the position of the fleet. 2. Sheltering of the enemy by disabling the arm of the artillery. 3. Frequent disablement of members of the crew for considerable intervals by grit and cinders in the eyes; this may occur to single individuals at the most important instant of the action. Experiments have been made with lignite tar, coal tar, and compressed coal bricks, etc., but without any satisfactory result, and whoever invents a smokeless combustible for our war-ships will perform a national service and reap no small advantage to himself. On 21st August, under cover of the ships in the offing, the remainder of the fleet in the harbour of Neufahrwasser completed with coal and water and rejoined the line. During the night the enemy made an attack by torpedo-boats, and under cover of the darkness and hazy weather succeeded in breaking through the defending line of boats and in coming within striking distance of the "Kurfürst Friedrich Wilhelm" and "Würtemberg." The enemy had, therefore, succeeded in disturbing the preparations of the defending fleet and in discovering his whereabouts. On the other hand, the commander-in-chief of the home fleet had been kept perfectly informed of the enemy's movements by the observing stations, which performed their duties with precision. Unfortunately, during the evening an accident occurred; the large steam-launch of the "Weissenburg," whilst on patrol duty under the land, having been run down and sunk by a first-class torpedo-boat or division boat. Two men of the launch lost their lives, the remainder of the crew were saved by the torpedo-boat. This morning we received information that the observing station Nixhöft had been attacked by twenty-five men from the "Carola" at 2.25 a.m. The post retired with their material in safety. At 4 p.m. news was received at the signal station Neufahrwasser from Berlin that the enemy was in considerable strength in the neighbourhood. Admiral Thomsen immediately ordered the fleet to weigh and proceed to meet the enemy, and if possible to bring on an engagement. As soon, however, as the formation of the fleet was completed by its junction with the look-out ships in the offing the exercise was considered as ended. The whole squadron shaped for Zoppol, and came to anchor there at 5.45 in order to give the officers opportunity to take part in the festivities which had been instituted in their honour. The enemy was informed of the programme by a torpedo-boat from the flag-ship. The torpedo-boat flotilla was ordered to return to Neufahrwasser to give the officers and crew a much-needed rest. The 22nd August was passed quietly at Zoppol, the ships being crowded with visitors; as on the previous Sunday, church service was held on the "Blücher" at 10 a.m., after which general leave was given. On the morning of of the 23rd, the "Blücher" proceeded to the Mole in Neufahrwasser to complete with coal and water for the trip to Kiel. At 12, the first squadron weighed and proceeded to sea in a north-east direction, then followed the observation group, except the aviso "Greif," the "Grille," and the first torpedo-boat flotilla. These together formed the Yellow Fleet for the proposed strategical manœuvres, under Vice-Admiral Thomsen. At 2 p.m., the second squadron, the aviso "Greif," and the second torpedo-boat flotilla got under way under Rear-Admiral Hoffmann, for the sake of simplicity known as the Blue Squadron. The "Blücher" left at 8 p.m., and took up a position between the two fleets, so as to overlook the operations. Both fleets were to operate against each other in accordance with

the following general idea:—The base of operations of the Blue is in the west of the Baltic, and their object is to effect a junction with another squadron to the eastward, which, however, in reality does not exist. The Yellow Fleet stands in the way of this junction, and of this the admiral of the Blue is aware; he will, therefore, manœuvre to avoid the bulk of the enemy's fleet. His object will be gained if he succeeds in bringing his fleet at the end of the manœuvres within ten miles of Hela without encountering the enemy in superior force. The Yellow Fleet, on the other hand, has to prevent this junction and to defeat the bulk of the Blue before it can be supported by the ships supposed to be lying at Dantzic. The position of the Yellow on the evening of 23rd August, 6 o'clock, to be twenty-five miles from Hela. From here the cruisers of the Yellow are to search for the ships of the Blue, inform their own admiral who follows, and endeavours to bring the Blue Fleet proceeding to the eastward, back to Kiel. If the Yellow Fleet succeeds in preventing the Blue from breaking through and is at the endangered position in superior force, its object will be considered accomplished. The rendezvous, if the manœuvres end to the eastward of the meridian of Arkona to be Sassnitz; if to the westward, the Stoller Ground lightship. In execution of this programme the "Blücher" proceeded to sea from Neufahrwasser on the 23rd at 8 p.m., the weather being fine, with a light breeze during the night from S.W. On the 24th at 7 a.m. she fell in with the look-out ships of the Yellow Fleet, first with the "Carola" then the "Jagd," and later the "Grille" and the battle-ship "Sachsen," with various torpedo-boats. About 11 a.m. the remainder of the Yellow were sighted, and a torpedo-boat was attached to the "Blücher" as a despatch-boat between the two admirals: no light duty under the circumstances. In the afternoon at 3 o'clock the manœuvres proper commenced. The Blue Squadron was to proceed from the Adlerground between Bornholm and Rügen, shaping a free course for Dantzic, and the Yellow proceed to intercept it. With this end in view the Yellow shaped course to the west with the look-out ships thrown forward; the "Blücher" followed this forward movement. At 6.45 the look-out ships signalled the vanguard of the enemy in sight, and soon after the "Greif" was also sighted on board the "Blücher." The "Greif," as already said, was the look-out ship for a first-class battle-ship. She altered course at first to the north and then to the south, and was under fire from the "Sachsen," but was soon lost to sight. Meanwhile it had become somewhat dark, and Admiral Thomsen had ordered his fleet to retire for the time, his intention being to avoid a contact with the Blue during the night, when its task of breaking through would be made much lighter. At daybreak his intention was to shape course westward, and endeavour to bring the Blue Fleet into a decisive engagement. The bulk of the Blue Fleet, however, were signalled at 8 p.m. under the land steering eastward. What passed afterwards could not be followed clearly, but the result was, at any rate, that the Blue reached the vicinity of Dantzic without serious opposition, and therefore its task of breaking through the defences of the Yellow was successfully accomplished.

At 4 a.m. the next day the order to rendezvous was given; both fleets united and steamed at a speed of 9 knots to the west. The next place of call was Sassnitz, to meet the despatch-boat and receive letters. In the forenoon "stand easy" on board, all the ships to make up for the loss of the previous night's rest; in the afternoon steam tactics. About 5 p.m. the torpedo-boat flotilla was sent away to make an attack on the fleet during the night while under way. All lights were masked and position lights lowered; the night, however, was clear, and objects fairly visible, so that individual ships could be recognised at considerable distances. The results were the same as already described in the other attacks, and after the practice was ended the ships and boats were soon again gaily illuminated from stem to stern through the ports and the signal lanterns, etc. At 1 a.m. the torpedo-boat returned from Sassnitz, where she had been sent for letters; and the scouting-ships from the north, where they had been

detached from the Yellow Squadron, rejoined the fleet. On the afternoon of the 27th August, between 2 and 5, the fleet arrived at Kiel, and the lately somewhat deserted harbour was suddenly a scene of life and bustle. The torpedo-boats had arrived early in the morning, about 5 o'clock; the gun-boat division later, at 11.30 a.m., consisting of the "Mücke," "Krokodil," "Skorpion," and "Natter," and these at once proceeded alongside the dockyard to coal. The whole fleet, when moored in the harbour, formed an imposing sight; the arrangements for coaling were already completed, and this business was quickly despatched, the fleet remaining a day or two to refresh and clean up. An incident of the torpedo-boat attack on the night of the 26th caused some excitement, which was the passage of a merchant steamer through the fleet, and which was thought might be a first-class torpedo-boat in disguise; however, after much commotion and flashing of electric light, etc., she proved to be really as harmless as she appeared, and was let go unmolested. On the 30th August, at 6.45, the fourth and fifth divisions again put to sea, the latter formed of the four armoured gun-boats above mentioned. They are small protected ships of slow speed, carrying only one heavy gun, and were designed and built for the protection of Wilhelmshaven; they are now, however, stationed at various ports. The "Charlotte" and "Stein" left soon after, then the third division, and lastly the first squadron, with the "Blücher." The exercises to be carried out were the manœuvring of one fleet against the other, and for this end a fleet was formed of the "Hildebrand," "Charlotte," "Stein," and the four gun-boats, which was to operate against the mobilised fleet and the two torpedo-boat flotillas. At 9.30 the manœuvres commenced to the north of the Stoller Ground, and lasted, with a pause at noon, until 5.30 p.m. The weather, which was gloomy and threatening, cleared up beautifully; in the evening the ships anchored at Schleimunde, Kiel remaining the base. The weather, which till now had been very fine, changed to stormy, the storm lasting till late in the night. The conditions lent a special charm to the circumstances of the night attack by the torpedo-boats on the fleet between 9 and 10; the effect of the rough sea occasionally illuminated by lightning flashes was most striking. The bad weather lasted till Tuesday, and rendered the manœuvres much more difficult, words of command being heard with difficulty, and the ships, though in close order, scarcely visible. Thick clouds of smoke from the funnels, too, intensified the unfavourable conditions; but the high efficiency of the signal staff enabled even these trying conditions to be successfully met. At 2 p.m., 1st September, the fleet anchored at Eckernförde. On the 2nd there was a torpedo-boat attack on the fleet in harbour, but the boats were detected by the flanking ships and repulsed, although the night was dark and favourable for the attack. The boldness and dash of the young officers in command of the boats were beyond all praise; although their eyes were alternately dazzled by the glare of the electric light and confused by the succeeding darkness, they manœuvred their boats amongst the ships at full speed, just as they might have done in broad daylight. Afterwards the fleet exercised their electric lights to compare the efficiency of their installations. On 3rd September, in the forenoon, steam tactics in the bay of Kiel, after which the ships anchored at Kiel for a few days' rest and to complete with coals, etc. The "Stein" and "Charlotte" here parted company with the fleet to prepare for their trip to the West Indies.

(To be continued.)

SPAIN.—The new second-class cruiser, for building which the funds have been provided by the Spanish residents in the Argentine Republic and Uruguay, is to be constructed by the "Société des Forges et Chantiers de la Méditerranée" at Graville, near Havre. She is to be called the "Rio de la Plata," and will be of an improved "Don Antonio de Ulloa" class. Her dimensions will be as follows:—Length, 246 feet; beam, 35 feet 5 inches; and with a mean draught of 14 feet

3 inches, her displacement will be 1,775 tons. Her engines are to develop 7,000-I.H.P. under forced draught, giving a speed of 20 knots, the boilers being of the Normand-Sigaudy water-tube type; while the coal supply will be 270 tons, giving a sphere of action of 4,000 miles at 12·5 knots. The armament will consist of two 15-centimetre (5·5-inch), four of 10-centimetre (3·9-inch), six 57-millimetre (2·2-inch), all Q.F., two Hotchkiss and four other machine guns, two field-guns, and two torpedo-tubes. The ship will be built of steel with a 1-inch protective deck and coppered. The ammunition hoists for the heavier guns will be worked by electricity.

The Spanish inhabitants of Mexico and the other American Republics have been equally patriotic, a sufficient sum having been subscribed among them for the construction of a second-class cruiser of 3,000 tons, which is to be built in the Arsenal at Caraccas.

The strengthening of the Spanish fleet is proceeding fairly rapidly. The first-class armoured cruiser "Emperator Carlos V." has concluded her steam trials satisfactorily and is approaching completion; she is a vessel of 9,235 tons displacement, with engines developing 15,000-I.H.P., giving a speed under forced draught of 20 knots; her length is 380 feet, beam 67 feet, with a maximum draught of 25 feet; protection is afforded by a 6·5-inch turtle-back armoured deck, the two turrets for the heavy guns having 10-inch armour, and she has also a central battery with 2-inch steel plating; her armament consist of two 11-inch Hontoria guns, in turrets, one forward and one aft, eight 5·5-inch Q.F., four 3·9-inch Q.F., with six 3 and 1 pounder Q.F. and six machine guns; she was built at Cadiz. There are five other first-class armoured cruisers under construction and four already completed. The new first-class protected cruiser "Alfonso XIII.," a vessel of 5,000 tons, 11,000-I.H.P., with a speed of 20 knots, has also completed her trials; she was constructed at Ferrol. Three torpedo-cruisers, the "Dona Maria de Molina," "Alvaro de Bazán," and the "Marqués de la Victoria," are under construction at the Villa de la Graña Works at Ferrol; the first two of these have been launched, the last named having taken the water on the 14th September of this year. All three vessels are identical, being 235 feet long, with a beam of 26 feet, a maximum draught of 10 feet, and a displacement of 823 tons. The engines are to develop 2,500-I.H.P., under natural draught, giving a speed of 17 knots and 3,500-I.H.P. under forced draught with a speed of 19·5 knots. The armament will consist of two 4·7-inch Hontoria Q.F. guns (Loma system), four 3-pounder Nordenfeldt Q.F. guns, and two Hotchkiss machine guns. There is a torpedo-tube in the stern and two torpedo-tubes on deck. Under construction at Thomson's, Clydebank, are four torpedo-boat destroyers of the "Terror" type; two of these, the "Audaz" and "Osado," have already successfully completed their steam trials; while the other two, the "Pluton" and "Proserpina," are approaching completion. The battle-ships "Pelayo," "Numancia," and "Vitoria," which have been undergoing extensive repairs and alterations at the La Seyne Yard, Toulon, are to be completed for sea by the end of the year. The second-class cruiser "Navarra" is to be employed as cadet training-ship at Carthagena. Fourteen ships have been struck off the strength of the Navy, among them the two frigates "Leáltad" and "Concepcion," and the armoured frigate "Duque de Tetuan," and the monitor "Puigcerda."

In the Budget for 1897-98 a sum of 2,000,000 pesetas is devoted to the improvement of the fortifications and at the following ports:—Cadiz, 105,000 pesetas; the fortified lines opposite Gibraltar, 60,000 pesetas; Carthagena, 331,000 pesetas; Barcelona, 125,000 pesetas; Ferrol, 250,000 pesetas; Palma (Majorca), 225,000 pesetas; Port Mahon, 360,000 pesetas; Santa Cruz de Teneriffe, 109,000 pesetas; Las Palmas, 385,000 pesetas; Ceuta, 450,000 pesetas; and Melilla, 100,000 pesetas.

The number of officers on the Active List, as fixed by the Royal Decree of 21st June, 1897, is as follows:—1 admiral, 6 vice-admirals, 15 rear-admirals, 24 captains (first class), 47 captains (second class), 87 commanders, 117 lieutenants (first class), 313 lieutenants, 224 sub-lieutenants.

For the Marine Infantry:—1 major-general in command, 4 brigadiers, 12 colonels, 16 lieutenant-colonels, 32 commandants, 140 captains, 164 lieutenants, 80 sub-lieutenants. The Marine Infantry consists of 3,000 men, divided into 3 regiments, of 2 battalions of 4 companies each, of which the headquarters are stationed at Carthagena, Cadiz, and Ferrol; 1 demi-brigade is in Cuba, and 2 battalions in the Philippines.—*Mittheilungen aus dem Gebiete des Seewesens* and *Le Yacht.*

MILITARY NOTES.

PRINCIPAL PROMOTIONS AND APPOINTMENTS DURING OCTOBER, 1897.

General Sir Richard Harrison, K.C.B., C.M.G., R.E., *p.s.c.*, to be Quartermaster-General to the Forces; Lieut.-General A. H. Cobbe, C.B., to be Colonel, Princess Victoria's (Royal Irish Fusiliers); Colonel (*temp.* Major-General) F. T. Hobson, Brigadier-General Ceylon, to be Major-General; Colonel G. H. Marshall, from Chief-Instructor, School of Gunnery, to be Brigadier-General on the Staff to command the Royal Artillery, Aldershot, with temporary rank of Brigadier-General; Colonel H. R. Viscount Downe, C.I.E., *h.p.*, to be Colonel on the Staff to command a cavalry brigade at the Curragh; Colonel E. J. H. Spratt, *h.p.*, to command the 8th and 40th Regimental Districts; Colonel G. F. Guyon, from the Royal Fusiliers, to command the 7th and 57th Regimental Districts; Colonel W. W. Lawrence, from the Royal Irish Regiment, to command the 18th Regimental District; Colonel F. W. Robinson, *h.p.*, to command the 53rd Regimental District; Lieut.-Colonel W. Aitken, C.B., R.A., to be Aide-de-Camp to the Queen, and Colonel.

HOME.—The question of the revival of the ballot for the Militia is said to be engaging the serious attention of the authorities. This form of enlistment, the nearest approach to compulsory military service which has ever been adopted by Great Britain, except in the Channel Islands, dates back to the Seven Years' War, when the Militia was re-organised by Lord Chatham. As early as 1752 the example of Prussia was held up for imitation in England. Mr. Thornton, when introducing the Militia Bill in that year, promised that "when this plan, limited as it is, shall take place, we shall become a warlike and formidable nation; by such a plan Prussia . . . . has acquired a weight and influence which renders her superior to States with a larger extent of country and inhabitants," and he went on to show the advantage we should have "whenever we pursue our own interest with equal sagacity and diligence. Hitherto a policy not to be comprehended by every understanding, has been preferred of paying large subsidies for foreign assistance, rather than the obtaining a natural force of our own men." Mr. Thornton's bill, however, never passed. In 1756, the threatening prospect of French invasion, and the absence from England of most of the Regular troops in the Seven Years' War, induced the Government to bring in a bill for the re-organisation of the Militia; and in the following year, after some opposition, it passed (30 Geo. II., c. 25). This was the first introduction of the ballot into England. The men were to be exclusively Protestant, between the ages of sixteen and forty-five, and not under 5 feet 4 inches in height, and were required to serve for three years. They were required to undergo twenty-eight days' training annually, be liable to be embodied in case of actual invasion, imminent danger thereof, or rebellion, but could never be compelled to serve out of

the United Kingdom. A balloted man might, by paying £10 provide a substitute, and so avoid personal service. Parish officers were allowed to supply volunteers, and pay them such bounty as the parish had fixed. Under these conditions the first ballot act was put in operation; but it was extremely unpopular and met with great opposition, serious riots occurring in many counties. After the embodiment of the Militia in 1793, various means were resorted to by those drawn by the ballot to escape personal service, and the bounties offered to substitutes rose to large amounts. In 1796, when the Supplementary Militia were raised under the provisions of 37 George III. c. 3 and 22, peers of the realm, officers and men of any recognised Yeomanry or Volunteer corps, members of universities, licensed teachers, clergymen, peace officers, articled clerks, apprentices, seamen, police-constables, etc., were exempted from the operation of the ballot. Under the Act, 47 George III., c. 71, passed in 1807, the Militia was increased by the addition of three-fourths of the quota increased in 1802. Any county not raising the required quota was liable to a fine of £60 for every man deficient. To show the extent to which the principle of substitution was indulged in, it may be mentioned that, out of 45,492 men raised for the Militia in 1803-4 by the operation of the ballot, no fewer than 40,998 were substitutes; while of 26,085 men raised between 1st September, 1807, and 31st March, 1808, only 3,129 were principals, the remaining 22,956 being substitutes. The amount paid as bounty for substitutes for the Militia varied considerably—from £45 in Monmouth, and £44 in Anglesea, to £10 in the Isle of Wight. In 1810, as much as £60 was paid in Devonshire. It must, however, be remembered that a man drawn in the ballot was required to serve in the Militia during the remainder of the period of its embodiment, and in this war the embodiment lasted from 1803 to 1814.

In 1808, the 48 George III. c. 3, enabled "His Majesty to establish a permanent local Militia Force, under certain restrictions, for the defence of the Realm"; by which a force six times the size of the regular Militia was obtained by ballot, consisting of men between the ages of eighteen and thirty, who were enrolled for four years, no substitutes being permitted. The chief reasons given for the formation of a local Militia was the want of reliance felt by the authorities in the then Volunteer Force, which had been in existence since the threatened invasion in 1803, and which was sadly deficient in discipline. Most Volunteer corps transferred their services to this Force with very great advantage to the country. The Force was called out periodically. At first the area of service was confined to the counties in which the men were raised, but by an Act passed in 1813 they became liable to serve out of their own counties till 1815. From 1816 the ballot was suspended annually, and the local Militia was allowed to die out; but its provisions are still legal, and may at any time be put into operation. There appears to be a growing feeling in this country in some quarters in favour of the conversion of the present Volunteer Force into local Militia.

The regular Militia was completed to its required strength, by means of the ballot, in 1820, 1821, 1825, and 1831. The year 1831 was the last occasion of the ballot being put into operation, but it is still liable to be enforced should the quota of any county not be completed by voluntary means; and there is strong ground for believing that the intention of the present Government is to see that the provisions of the Act are fully carried out.

But the re-introduction of the ballot can never be attended with satisfactory results so long as the principle of substitution is permissible. The system which allows a purchased substitute to give his services in lieu of those of the man chosen is extravagant and unfair. Substitutes are sure to command high bounties, the effect of which will be to seriously raise the cost of recruiting for the Army. Every intending recruit will very naturally first enlist at a high bounty for the Militia, and will subsequently demand a further bounty before transfer to

the Regular Army. The ballot is an alleviation of universal military service, and it is not unreasonable that every free-born male of every class in these islands should be made subject to it unless he were serving in the Royal Navy, Royal Naval Reserve, Regular Army, Militia, Yeomanry, Volunteers, or Police.

It is a little difficult to know from what standpoint to approach the consideration of the experimental cycle reconnassaince undertaken by the acting commander of the Woolwich District on September 22nd. Is it to be considered as an afternoon's exercise for the officers of varied ages, weights, and chest measurements of the Woolwich Garrison; or as a serious attempt to solve a practical military problem; or, thirdly, is it to be assumed that the actors in this drama were playing the part of other and humbler atoms in the military world of England?

Looking on the exercise in the first light, everything was admirably arranged. No one had to ride more than he conveniently could; the weather was charming; the ride with an object is always less tiring and more to the point than an aimless career along the best-chosen roads; and, finally, the companionship was no doubt a pleasant feature in the day's entertainment.

The second light on which the exercise may be looked is more serious—the light of an attempt to solve a practical military problem. And this proposition breaks down at once in one material factor, namely, that the exercise was conducted solely by officers mounted on their own machines and carrying light weights. In war forty-two officers would hardly be spared from the Woolwich or any other garrison to undertake such duty.

In exactly the form in which it was carried out, the exercise could not be undertaken in war-time, and therefore it will be convenient to consider the second and third propositions together, and assume that the officers engaged were really undertaking the *rôles* of a scratch body of cyclists supplied by N.C. officers of the Regular Service, augmented, perhaps, by the cyclist sections of local Volunteers, the whole under three or four competent officers.

The difference is essential, for the elaborate system carried out by a body of officers volunteering for a day's instruction must almost inevitably have broken down if conducted by less highly-educated individuals in the presence of an invading enemy, who may almost count on the aid supplied by the varieties of our climate. The Instructions issued were as follows:—

"*Field Reconnaissance by Officers on Cycles.*

The Colonel Commanding the District proposes carrying out an extended Field Reconnaissance by Officers on Cycles on the 22nd instant, if sufficient Officers will come forward to assist. Three classes of capabilities will be catered for in the Scheme:—

Class	I.,	those who cannot ride more than			20 miles.
,,	II.,	,,	,,	,,	35 miles.
,,	III.,	,,	,,	,,	50 miles.

The assembly will take place at the south end of Woolwich Common at 11.30 a.m. on 22nd inst.

Officers willing to assist are requested to give in their names, with their capabilities, to the C.S.O., as soon as possible, and at all events not later than 10.30 a.m. on the 20th instant."

WOOLWICH,
22nd September, 1897.

General Idea.

The whole of the Troops south side of the River Thames and east of the line joining London and Brighton, have been withdrawn and are on the morning of 22nd September, 1897, concentrated at Woolwich.

All Telegraphs and Railways have been destroyed.

The enemy landed at Hastings on the 18th and 19th September, and is reported to have his most advanced troops at Wadhurst and Staplehurst at 4 p.m. on the 21st September. His objective is Woolwich Arsenal.

Special Idea for Cyclist Corps.

At 10.30 a.m. on the 22nd September, the O.C. Cyclist Corps (which is concentrated at Herbert Hospital) receives the following order:—

From Chief Staff Officer,
Head Quarters,
Eastern Army,
Woolwich.

To Officer Commanding
Cyclist Corps,
Herbert Hospital.
Woolwich.

10 a.m. 22nd September, 1897.

1. It is reported that the enemy marching on Woolwich had, at 4 p.m. yesterday, reached Wadhurst and Staplehurst.

2. You will reconnoitre the whole country between this and the River Medway (from Edenbridge to Rochester), and report the result as soon as possible.

By Order,
F. G. SLADE, Colonel,
Chief Staff Officer.

Orders by Lieut.-Colonel Eden Baker, Commanding Cyclist Corps.

HERBERT HOSPITAL, WOOLWICH,
11 a.m. 22nd September, 1897.

1. The enemy is advancing from Hastings to Woolwich, and it is reported that his most advanced troops had reached Wadhurst and Staplehurst by 4 p.m. yesterday.

2. The Cyclist Corps will assemble at the south end of Woolwich Common at 11.30 a.m. to-day, and be ready to move off at 12 noon. Lamps to be carried.

3. The Corps will reconnoitre the whole country up to the River Medway (Edenbridge to Rochester).

4. The Corps will be divided into two Sections, of two groups each, as follows:—

No. I. Section under Lieut.-Colonel Fawkes.
,, II. ,, ,, Major Barter.

5. The sections will reconnoitre up to, and including, the following frontages, if they are able to:—

No. I. Section—frontage—Edenbridge to Yalding.
,, II. ,, ,, Yalding to Rochester.

6. No. I. Section will advance through Eltham, and No. II. Section through Welling.

7. Section Commanders will arrange that no group advances beyond the following line until it has obtained touch with the groups to its immediate right and left:—

Chelsham—Cudham Wood—Halstead—Farningham—Dartford.

Shoreham Station will be the meeting place between Sections.

8. All reports to be sent to the O.C. Cyclist Corps, The Greyhound P.H., Eltham.

By Order,
J. W. ORMISTON,
Capt. and Adjt.

Orders to No. I. Section, Cyclist Corps.

1. With a view to carrying out the orders of the O.C. Cyclist Corps of this

day's date, the Groups will advance by the following routes and reconnoitre the undermentioned frontages :—

No. 1 Group.

Route—Bromley, Keston, Westerham, Edenbridge.

Frontage—Edenbridge to Tonbridge.

No. 2 Group.

Route—Bromley, Farnborough, Halstead, Sevenoaks, Tonbridge.

Frontage—Tonbridge to Yalding.

2. Should the Groups not be able to advance as far as the River Medway, each will move eastward, No. 1 until it crosses No. 2's route, and No. 2 until it crosses No. 3's route (Farningham, Wrotham, Yalding). After which, each will return at once by the quickest route to me at Bromley.

3. Special attention is directed to Order No. 7 of this day's date, and Group Leaders will report at once to me that this has been carried out. Cudham and Shoreham Stations will be the meeting places.

4. Group Leaders will pay special attention to keeping up the "Cyclist Reconnaissance Report" correctly, and will hand in the same immediately on their return.

Herbert Hospital,
22. 9. 97.

L. G. Fawkes, Lt.-Col.,
Comdg. No. I. Section.

Head Quarters—The White Hart Hotel, Bromley.

Orders to No. II. Section, Cyclist Corps.

1. With a view to carrying out the orders of the O.C. Cyclist Corps of this day's date, the Groups will advance by the following routes, and reconnoitre the undermentioned frontages :—

No. 3 Group.

Route—Welling, Foots Cray, Farningham, Wrotham, Yalding.

Frontage—Yalding to Maidstone.

No. 4 Group.

Route—Welling, Dartford, Gravesend, Stroud.

Frontage—Maidstone to Rochester.

2. Should the Groups not be able to advance as far as the River Medway, they will move towards each other and obtain touch on the line Lower Halling-Meopham-Sutton at Hone. After which each will return at once by quickest route to me at Foots Cray.

3. Special attention is directed to order No. 7 of this day's date, and Group Leaders will report at once to me that this has been carried out. Shoreham Station and Darenth will be the meeting places.

4. Group Leaders will pay special attention to keeping up the "Cyclist Reconnaissance Report" correctly, and will hand in the same immediately on return.

Herbert Hospital,
22. 9. 97.

B. Barter, Major,
Comdg. No. II. Section.

Head Quarters.—(Removed to)
The Black Horse Hotel, Sidcup.

The area to be reconnoitred was divided into two sections. Each section comprising two groups each of eight officers.

From para. 7 of the orders of the O.C. Cyclist Corps (No. 4) it will be seen that the reconnaissance at a radius of 15 miles from the starting point was to

halt until lateral communication was established. No doubt this scheme had its advantages, the principal one being that the advance was simultaneous; but it is to be questioned whether it would work satisfactorily in war—especially with quick-moving troops like cyclists, and with less intelligent supers than the actors in this *al fresco* drama. Suppose, for instance, that one of these minute patrols were eaten up before reaching the appointed zone; might not the whole be delayed and invaluable information lost? Surely, with ordinary material in the way of cyclists, it would be more practical to make the segments of the circle smaller and place each under an officer responsible for its thorough searching, and more or less independent of the parties to right and left. The country covered in cycle reconnaissance is so large and the component bodies are so small that mutual support is well-nigh impossible, and this being the case it seems doubtful if the elaboration of such a system as this is practical or advisable.

It is stated that some of the reports were brought to headquarters at rates varying from 14 to 17 miles an hour. It would seem misleading to imagine this possible under service conditions. The cyclist private, carrying a rifle, ammunition, and a kit, cannot be counted on for any such speed as this, if the roads are at their best and his tyres immaculate. Eight to ten miles an hour will be found a much safer estimate of individual cyclist's work, with weather and roads of varying excellence. The number of punctures even in this small force seems rather large, and it would be increased in the heavier weights on the hind wheel. The doubts that have been frequently experienced as to the pneumatic tyre being the best for military work seem justified by this experiment, and the need of a skilled artificer in each and every section seems more than ever necessary.

The following study in detraining has been contributed by Major J. Marshall-West, 4th Bn. Prince Albert's (Somersetshire) Light Infantry, and formerly of the 1st Battalion. It provides an interesting argument as to the practical value of the War Game.

That there is a real value in *kriegsspiel* exercises, many practical soldiers readily admit—soldiers, indeed, who have had to put their theory into practice on more than one hard-fought field of battle.

That there is also a lurking danger in them must equally be admitted, for there will always be some, alas, who lose the spirit in the letter, and to these few the game may be a snare, although, fortunately, they form a decided minority.

But there are many soldiers still, Regular and otherwise, who, if called upon to answer the question now asked, would reply, with little or no hesitation, in the negative. And it is to these sceptics that the following remarks are especially addressed, in the earnest hope that the subject may receive further consideration from them. The very fact of one's calling them "sceptics" shows that they are credited with reasoning faculty and a readiness to listen to the other side. Merely to look down as from a lofty height on the humble endeavours of their fellow soldiers to improve their military knowledge by means of maps, and the movement thereon of small pieces of coloured lead, cannot be considered as justifying their scepticism.

The very title of these tactical exercises is misleading and unfortunate, and it seems a great pity that we cannot coin a more accurately descriptive English expression for them than the bald translation of the German original. To the German, no doubt, the "game" of war is so serious that it is unnecessary to impress upon him the value of its paper presentment; but to us fortunate islanders the first half of the title is apt to be lost in the second. A "game," moreover, to the average Briton, suggests winning or losing—the former for choice whenever possible and by fair means—whereas this question of winning or losing should most carefully be eliminated. Often a virtually impossible task is set to one commander or the other, but he can still carry out his orders and do his duty.

The first point of importance is that a real view of the situation should be

taken, and that, as far as possible, everything should conform to the probabilities of actual operations. As to gaining some petty advantage over the opponent in minor details, or sometimes even over the umpire staff, such things do not enter into the true student's calculations. He is simply trying to learn. True, there are neither bullets nor shells to shake his nerves during these map contests, nor, indeed, are there nerves to be shaken in the sense that they are shaken in actual fight; but he has to exercise his judgment and reasoning powers, and the fact of being called upon subsequently to explain his intentions, with the reasons which influenced him in his decision, can scarcely be otherwise than beneficial. When it comes to actual contact of the troops engaged, it is hard to preserve the semblance of reality. So many considerations are involved that it makes it difficult to say what *would* happen. But even what *might* happen is of some value. The opposing troops, moreover, have to be credited, as a rule, with *moral*, courage, fighting capacity and physique of absolute equality—a condition of affairs seldom existing on the battle-field. Therefore, when once close quarters are arrived at, it is generally wise to sound the "Halt," and take stock of the situation, when comes the opportunity of driving home the lessons. With a carefully considered scheme, which conforms to reasonable probability and avoids the introduction of strategy, many valuable lessons may be learned by the combatants in making their preliminary arrangements if the spirit of reality is carefully fostered. For in the field how often a commander might be in exactly the same position, knowing no more than our paper and lead commander, and, like him, relying on maps alone when forming his plans and making his general dispositions! Here then, O sceptic, is a decided approximation to reality, and, in support of these views you are asked to follow the outlines of a problem recently worked out at the Royal United Service Institution by the members of the Home District Military Society, and subsequently studied on the ground fought over.

The problem put before each commander was of decided interest, highly so to us defenders, and had evidently been carefully considered. The general situation may be summed up as follows:—An invading force (BLUE) is advancing on London by the main Portsmouth road, and on the 25th March, having forced the Foxwarren Park position, is pushing the defenders (RED) back on to Esher. The invaders have occupied the Surrey side of the Thames from Windsor to Molesey, their object being to snatch London by pressing on at once. The defenders, however, are preparing a strong defensive position on Kingston Hill—perilously close to the capital it seems when one comes to fancy it as real—where a stand is to be made, and where troops are concentrating in large numbers. But time is all-important, and a diversion is contemplated.

At this point our friendly—or at least reasonable, as otherwise he would scarcely have read thus far—sceptic is asked to pause and consider whether he cannot recognise some faint resemblance to reality, or, at all events, to possibility, in the given situation, if happily not in our own annals, in those of neighbouring tribes. And further to foster this spirit of reality the very terms "Red" and "Blue" will now be discontinued. For the rest of our study *we* are simply Britons or defenders; *they*, "the enemy," are simply —— or ——, or, more probably, two or three combined, since, if it should ever come to the defence of hearth and home with us, is it not more than probable that it would be against a strong coalition of the Powers? Blanks have been left as to the identity of the invaders, in order to prevent possible jealousies amongst them, and in the hope, moreover, of not endangering that Concert of Europe on which we are now relying for peace.

We Britons, then, contemplate a diversion in order to gain time, and, owing to the invader's rapid advance, the flanks and rear of his successful legions would seem to offer the opportunity. Fortunately, a complete infantry division (Home Defence), with pontoon troop, cavalry regiment, and battery of Horse Artillery added, has been got together, and, on the day of 25th March, is drawn up on the Thames Embankment. This is the force selected for the diversion, and at 2 p.m.

its commander receives an order from the Horse Guards to the effect that the L. and S.W. Railway line to Shepperton will be placed at his entire disposal from 6 that evening until 6 the following morning; that the force is to be transferred by rail to that village; the river is to be crossed between Shepperton Lock and Laleham; the enemy's line of communication with Guildford interrupted, as much damage to these and as much disturbance and alarm caused as possible. Here, then, are four distinct problems for the British general of division and his staff:—

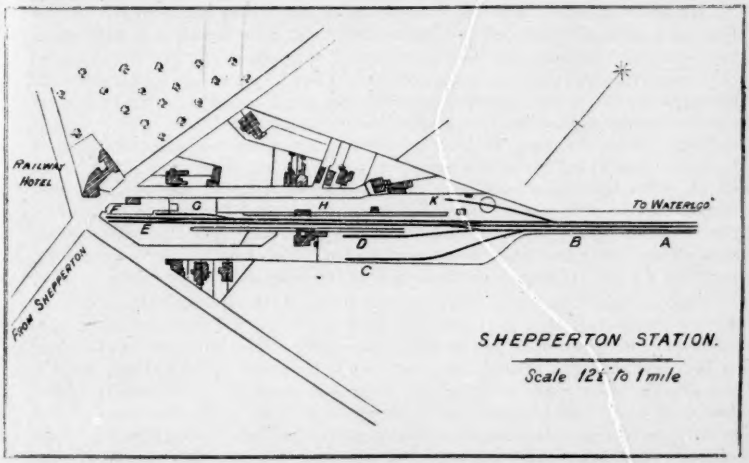
1. How to get the troops to Shepperton?
2. How to dispose of them when there?
3. How and where exactly to cross the River Thames?
4. What to do when across?

The initial problem only will be dealt with here, and it may be mentioned that the idea of publishing the accompanying time-table was suggested by the request for a copy from a number of keen spectators. As, however, at that time only the rough draft was in existence, it was not easy to comply with the request; but it is believed that it may now prove of interest to them at least, and that, however faulty it may be in detail, they will give the framer thereof credit for a certain amount of thought and consideration in the matter.

To return to facts: What was the action of the British commander? As his first train could not leave before 6, he decided to at once despatch a staff officer to Shepperton to investigate the capabilities of that station for the detraining of his force. Incidently it may be added that he despatched, in theory, another staff officer to decide on the positions for bivouacking the troops on arrival; and yet another to reconnoitre the river-line within the prescribed limits, with a view to forcing it in the morning. In practice—that is, in the "game"—it was the same individual who acted in this triple capacity; and, having some other things to do in this world besides investigating railway stations, bivouac grounds, and river banks, his visit was somewhat hurried in consequence. But here, again, was a point in favour of the similarity of circumstances to actual operations, for the real staff officers, even the three, would have had none too long a time for consideration, and a rapid decision would have been of importance.

The railway investigator then hurried down to Shepperton, with a parting word from his chief that an early arrival of the whole force might be of vital importance in the event of his deciding on making a dash to get across the river before daylight. On arrival there he found, by great good fortune, a most valuable and zealous ally in the person of the stationmaster. Indeed, if the affair had been real, that official could scarcely have been more interested in the scheme, or more painstaking in making matters clear and intelligible. To those officers who visited the station on the day following the map operations, the foregoing remarks will have been scarcely necessary, since they had the opportunity of listening for themselves. Here, then, was the very man to help one through. He undertook, if necessary, to work half-a-dozen trains in and out during the hour, and this number is not exceeded in the table. From the fact of there being an extensive stud-farm near, the railway staff were frequently called upon to deal with a large number of horses; and, moreover, Kempton Park race-course being next door, so to speak, gave them excellent practice in handling a congested mass of trains on such a day, for instance, as the "Jubilee Stakes." It will be seen from the accompanying plan of the station that every train, on arrival, must first come into platform E, and that, whilst that platform is occupied, no other train can possibly be put into any other platform or siding. Moreover, whilst E is occupied, no train can get away, with the exception of one already standing in H, or departure platform. F is a small platform, permitting three horse-boxes to be unloaded; G is an existing dock for detraining vehicles "end on," and has also a side platform which will take two horse-boxes instead, if desired. As luck would have it, a Pickford's van was actually being detrained

whilst these particulars were being explained by the stationmaster. C siding will hold a complete train, whereas D will only take about half as many coaches. The long siding marked A and B will take at least two good trains, but the platform there is very narrow, for the purpose only of window cleaning, and therefore of no use for detraining, except in the case of troops themselves. It is of great use, however, for running up a train to wait its opportunity of getting away. The existing platforms E and H are already available for detraining of all sorts, the former for men and horses only, the latter for men and wheels, or, if desired, for horses also. The first point then to decide was how to utilise most fully the capabilities of the place, and it seemed that, since it would be a serious matter to prepare the sidings C and D for horses, it would be better to reserve them for the "end on" detraining of vehicles by means of ramps, after which E and H could be reserved, if necessary, wholly for men and horses. Until either C or D were so arranged, wheels must be dealt with in the existing dock G. The "end-on" detraining arrangements for C and D could presumably be carried out in a comparatively short space of time by the Field Company R.E., utilising the materials of their bridging superstructure. To get this done as soon as possible, that valuable unit of the division must be hurried down almost at the start.



SHEPPERTON STATION.
Scale 12½ to 1 mile

Having formed, therefore, a general idea of this sort, the staff officer started back for Waterloo, and proceeded to work out in the train the composition of the first half-dozen trains or so; so that the selected units and every one concerned might be warned as early as possible. The distance from Waterloo to Shepperton is 19 miles only; the average time taken by ordinary passenger trains stopping at all intermediate stations is fifty minutes. It must be remembered that according to the Special Idea the line was entirely at the disposal of the British commander from 6 p.m. to 6 a.m. With the exception, however, of the first train despatched, consisting of infantry only, the full fifty minutes has been allowed throughout. The various units have been kept together as far as possible, and the trains are arranged with a view to the necessary method of detraining in each particular case. After a few trains had been worked out, it was simple enough to work out the detail of the remainder, since the same principle holds good throughout, and the arrangements are in many cases identical. In this way, although the scheme might not have been completely worked out in time for the start, it would have been quite possible to keep ahead of the later units in point of working out their

despatch. As far as the technical details of working the trains in and out of the station and such matters are concerned, it would seem desirable to defer as a rule to the railway authorities. Where such matters are referred to in the time-table, they have been added to show the possibility of such working, and were not dealt with in the first instance. A spare engine, for instance, or better perhaps two, would be sent down the very first thing. This is a detail essential to the working of the trains. It may be of interest to mention that the working of the trains has been checked much on the principle by which the Suez Canal traffic is regulated. The building up of the trains, moreover, would be a railway matter; the military authorities presumably only furnishing the detail of troops, etc., to be conveyed by any particular train. In the table, 50 men are allotted to a coach, 3 horses to a horse-box, 6 horses to a cattle-truck, 1 vehicle to an open truck.

Doubtless a real staff officer, especially one who has had the incalculable advantage of a Staff College training, will see innumerable weaknesses in the accompanying table, and clear internal evidence of the amateur hand in dealing with such a problem. The casual soldier may not even look at it; and if he does, is likely only to murmur *Cui bono?* Well, let him, and let our friend the sceptic hear one view at least as to the good of it. However faulty the result may be, honest, steady work is never thrown away. For even if the immediate advantage of a self-imposed task may not be obvious, and no one may appear to be benefited if his work is thorough, he is a gainer, because he must have learnt something; and he is ready to grapple with a similar or more difficult undertaking with a fuller knowledge, with greater confidence, and, consequently, with better chances of success. The real kindness, therefore, is to point out the weaknesses and faults in the work when done, and that is what is now particularly asked for by the framer of this time-table.

The most recent addition to Her Majesty's Colonial Irregular Forces is the battalion of native troops being raised in Lagos for service in British Hinterland. The force will comprise a battalion of infantry, with an artillery company. Major J. F. D. Lugard, C.B., D.S.O., Norfolk Regiment, has been appointed to the command of the force, with the rank of Lieut.-Colonel; Captain T. D. Pilcher, *p.s.c.*, Northumberland Fusiliers, will command the battalion, of which Captain P. S. Wilkinson, Northumberland Fusiliers, has been appointed Adjutant; and Captain W. A. Robinson, R.A., takes over the command of the artillery company. Altogether twenty-eight officers have been seconded for service with the force, of which one belongs to the Royal Artillery, one to the Foot Guards, twenty-four to the Line, one to the Royal Marines, and one to the Militia.

SOME NOTES DURING THE RECENT FRENCH MANŒUVRES IN THE NORTH.

By Major F. H. HOSKIER, 3rd Middlesex Vol. Artillery.

In these days, when Europe is one vast camp of instruction every autumn, officers find little difficulty in attending foreign manœuvres. But it was not always so. One hundred and fifty years ago (1753), when Louis XIV. was proposing to place a great part of his Army under canvas, General Wolfe, then on leave in Paris, jumped at the chance, and applied to be appointed as an *attaché militaire*. In one of his letters he writes:—"The French are to have three or four different camps; the Austrians and Prussians will probably assemble some corps, so that I may, before the end of the summer, have seen half the Armies in Europe at least, and that I believe at very little expense." However, Wolfe's colonel would not hear of the scheme, and we find the young lieut.-colonel writing on the 9th March:—"Everybody knows how difficult it is to get out of England, and yet they won't allow us to make use of the opportunity that offers, and that perhaps can never come again. . . . . A major and an adjutant (if the colonel is to be indulged himself) are not to be considered as

Troop Train No.	1	2	3	4	5	6	7
				No. 2 Battalion.			
Unit	Staff of 1st Brigade and No. 1 Battalion			Field Company R.E.		No. 3 Battalion and Machine Gun Section.	
	Men only.	Horses, Wheels, and Men.	Wheels and Men.	Horses, Wheels, and Men.	Horses and Men.	Horses and Men.	Wheels and Men.
Entrain at	6.0	6.0	6.0	6.0	6.15	6.15	6.45
On Platform	E	F, G, & H	D	C	F, G & H	E	F, G & H
Waterloo dep. ...	6.10	6.15	6.20	6.25	6.45	6.50	7.10
Shepperton arr. ...	6.55	7.5	7.10	7.15	7.35	7.40	8.0
Detrain on Platform...	E	F, G, & H	D & A	E & C	G & H	E	G & H
Shepperton dep. ...	7.0	7.10	8.25	8.20	7.55	7.55	8.30
	Detraining Officer of Division and of 1st Brgde.	Entraining Officer of 1st Brigade remains at Waterloo	/	Rear portion into C, front portion clears from E by 7.30			
Composition & Order of Train.	20 Third 2 First Engine	1 Third 1 First 6 Cattle 4 H. Boxes 9 Open *— 2 H. Boxes Engine	10 Third 1 First *— 9 Open Engine	10 Open *— 2 Third 8 Cattle 5 H. Boxes 1 First 2 Third Engine	8 Third 1 First 6 Cattle 2 Third 3 H. Boxes Engine	10 Third 7 Cattle 3 H. Boxes 1 First 2 Third Engine	9 Third 1 First 13 Open Engine
[Total without Engine or Break Van.]	22	23	20	28	20	23	23
No. of Troops, etc. — Officers	22	12	15	7	14	15	15
No. of Troops, etc. — Other Ranks ...	950	45	485	206	486	560	423
No. of Troops, etc. — Horses — Officers ...	—	16	—	14	7	7	—
No. of Troops, etc. — Horses — Others ...	—	33	—	47	33	39	—
No. of Troops, etc. — Carrgs. — 2 Horse ...	—	5	5	3	—	—	7
No. of Troops, etc. — Carrgs. — 4 ,, ...	—	4	4	7	—	—	4
No. of Troops, etc. — Carrgs. — 6 ,, ...	—	—	—	—	—	—	—
No. of Troops, etc. — Carrgs. — Guns	—	—	—	—	—	—	2
Remarks	Spare Engine goes down before No. 1 Train and runs into K siding.	* Trains marked thus are to be broken at this point at Shepperton.		Engineers commence work at once on D and C sidings for detraining of wheeled traffic "end-on."			

J. J. KELIHER & CO., LONDON.

8	9	10	11	12		13	14	15
No. 4 Battalion.		Bearer Company & Company A.S.C.				Pontoon Troop.		
Horses and Men.	Wheels and Men.	Wheels and Men.	Horses, Wheels and Men.	Horses and Men.		Wheels and Men.	Horses and Men.	Wheels and Horses.
6.50	7.10	7.0	7.10	7.15		7.45	7.50	7.40
E	D	C	F, G & H	E		C	F, G, & H	D
7.15	7.40	7.45	7.50	7.55		8.30	8.35	8.40
8.5	8.30	8.35	8.40	8.45		9.20	9.25	9.30
E	D & A	C	G & H	E		C	F, G, & H	D & E
8.20	9.15	9.10	9.20	9.10 Entraining Officer of 1st Brigade.		10.10	10.5	10.15 Rear portion into D, front portion clears from E into A by 9.45
8 Third 6 Cattle 3 H.Boxes 1 First 2 Third Engine	Same as No. 3	2 Third 1 First 20 Open Engine	2 Third 7 Cattle 14 Open Engine	18 Cattle 3 H.Boxes 1 First Engine	FINISHES 1st BRIGADE.	2 Third 1 First 19 Open Engine	2 Third 20 Cattle Engine	8 Open — 10 Cattle 4 H.Boxes Engine
20	20	23	23	22		22	22	22
,,	,,	3	1	4		3	—	—
,,	,,	92	93	8		109	90	10
Same as No. 5	Same as No. 3	—	—	8		—	—	10
,,	,,	—	41	106		—	120	60
,,	,,	20	14	—		—	—	1
,,	,,	—	—	—		—	—	6
,,	,,	—	—	—		19	—	1
,,	,,	—	—	—		—	—	—
		Bearer Co. Wheels and men, also 1 officer, 31 men, and 7 wheeled of A.S.C. Co.		Officers' Grooms in H.Boxes, including Chargers of Bearer Coy. Officers.				Officers' Grooms in H.Boxes.

14	15	16	17	18	19	20	21
	Troop.	Divisional Staff and Divisional Squadron.		No. 5 Battalion and Machine Gun Section.		No. 1 Battery R.A	
s and en.	Wheels and Horses.	Horses and Men.	Horses, Wheels, and Men.	Wheels and Men.	Horses and Men.	Wheels and Men.	Horses a Men.
50	7.40	8.15	8.35	8.45	9.10	9.15	9.30
& H	D	E	F, G, & H	D	E	C	F, G, &
35	8.40	9.0	9.30	9.35	9.40	10.0	10.5
25	9.30	9.50	10.20	10.25	10.30	10.50	10.55
& H	D & E	E	G & H	D & A	E	C	F, G, &
5	10.15	10.10	10.50	10.50	10.45	11.20	11.30
	Rear portion into D, front portion clears from E into A by 9.45		Entraining Officer of Division remaining at Waterloo.	Detraining Officer of 2nd Brigade.			Includin Staff o Brigad Divisio
rd	8 Open	2 Third	2 Third	Same	Same	3 Third	21 Cattle
tle	—	22 Cattle	18 H. Boxes	as	as	1 First	3 H. Box
ine	10 Cattle	2 First	1 First	No. 7,	No. 6.	17 Open	Engin
	4 H. Boxes	Engine	2 Open	except that		Engine	
	Engine		Engine	train must			
				be broken.			
2	22	23	23	23	23	21	24
—	—	15	8	,,	,,	8	—
0	10	85	103	,,	,,	157	9
—	10	—	53	Same	Same	—	9
0	60	131	—	as	as	—	125
				No. 7.	No. 6.		
—	1	—	—	,,	,,	—	—
—	6	—	2	,,	,,	4	—
—	1	—	—	,,	,,	7	—
—	—	—	—	,,	,,	6	—
	Officers' Grooms in H. Boxes.		Officers' Grooms in H. Boxes.	Wheels backed into D, others to A.			Officers Grooms H. Boxes

21	22	23	24	25	26	27
r R.A.	Staff of 2nd Brigade and No. 6 Battalion.		No. 2 Battery R.A.		No. 7 Battalion.	
rses and Men.	Wheels and Men.	Horses and Men.	Wheels and Men.	Horses and Men.	Wheels and Men.	Horses and Men.
9.30	9.35	9.40	10.0	10.5	10.10	10.15
G, & H	D	E	C	F, G, & H	D	E
10.5	10.10	10.15	10.40	10.45	10.50	10.55
10.55	11.0	11.5	11.30	11.35	11.40	11.45
G, & H	D & A	E	C	F, G, & H	D & A	E
11.30	11.25	11.20	12.0	12.10	12.5	12.0
cluding taff of rigade ivision		Entraining Officer of 2nd Brigade remaining at Waterloo.				
Cattle H. Boxes Engine	12 Third 2 First *— 9 Open Engine	9 Third 6 Cattle 6 H. Boxes 1 First Engine	Same as No. 20	21 Cattle 2 H. Boxes Engine	Same as No. 3	Same as No. 8
24	23	22	21	23	20	20
—	22	12	5	—	,,	,,
9	560	435	160	6	,,	,,
9	—	16	—	6	Same as No. 3	Same as No. 5
125	—	33	—	125		
—	5	—	—	—	,,	,,
—	4	—	4	—	,,	,,
—	—	—	7	—	,,	,,
—	—	—	6	—	,,	,,
fficers' ooms in Boxes.		Officers' Grooms in H. Boxes.				

26	27	28	29	30	31	32	33	34
No. 7 Battalion.		No. 3 Battery R.A.		No. 8 Battalion.		Bearer Co. & Co. Army Service C		
els and Men.	Horses and Men.	Wheels and Men.	Horses and Men.	Wheels and Men.	Horses and Men.	Wheels and Men.	Horses, Wheels, and Men.	Horses Men.
.10	10.15	10.40	10.45	10.50	10.55	11.20	11.25	11.35
D	E	C	F, G, & H	D	E	C	F, G, & H	E
.50	10.55	11.20	11.25	11.30	11.35	12.0	12.5	12.10
.40	11.45	12.10	12.15	12.20	12.25	12.50	12.55	1.0
& A	E	C	F, G, & H	D & A	E	C	F, G, & H	E
.5	12.0	12.40	12.50	12.45	12.40	1.25	1.30	1.25 Entrain Officer 2nd Brig
me as . 3	Same as No. 8	Same as No. 20	Same as No. 25	Same as No. 3	Same as No. 8	Same as No. 10	Same as No. 11	Same as No. 1
0	20	21	23	20	20	23	23	22
,	,,	,,	,,	,,	,,	,,	,,	,,
,	,,	,,	,,	,,	,,	,,	,,	,,
me as . 3	Same as No. 5	Same as No. 24	Same as No. 25	Same as No. 3	Same as Ns. 5	Same as No. 10	Same as No. 11	Same as No. 1
,	,,	,,	,,	,,	,,	,,	,,	,,
,	,,	,,	,,	,,	,,	,,	,,	,,
,	,,	,,	,,	,,	,,	,,	,,	,,
,	,,	,,	,,	,,	,,	,,	,,	,,

34		35	36	37	38	39	40
ice Corps.		Divisional Army Service Corps and Hospital.		Ammunition Column.			Forgets and War Corresp'ndts.
orses and Men.		Wheels and Men	Horses and Men.	Horses and Men.	Wheels only.	Wheels and Horses.	
11.35		12.0	12.5	12.10	12.0	12.0	12.50
E		C	F, G, & H	E			E
12.10		12.40	12.45	12.50	1.15	1.20	1.25
1.0		1.30	1.35	1.40	2.5	2.10	2.15
E		C	F, G, & H	E	C & D	F, G, & H	E
1.25		2.0	2.5	20			
ntraining fficer of Brigade	FINISHES 2ND BRIGADE.						Entraining Officer of Division.
Same as No. 12		2 Third 22 Open Engine	1 Third 18 Cattle 1 First 4 H-Boxes Engine	3 Third 20 Cattle 2 H. Boxes 1 First 1 Third Engine	27 Open Engine	16 Cattle 11 Open Engine	
22		24	24	27	27	27	Say 17
,,		—	11	3	—	—	
,,		90	60	193	—	—	
Same as No. 12		—	12	4	—	—	
		—	105	122	—	96	
,,		4	—	—	10	—	
,,		18	—	—	3	—	
,,		—	—	—	14	11	
,,		—	—	—	—	—	

equal to the great task of exercising, in our frivolous way, a battalion or two of soldiers!"

The scheme of the French manœuvres this year pivoted on a phase of the 1870-1 war—the operations leading up to the battle of Bapaume—just as in 1894 the general ideas for the 4th and 11th Corps d'Armée were based on the operations round Orleans in the same campaign. A certain amount of realism was thus introduced which encouraged all ranks to take a serious interest in the work, although the memories awakened must at times have been sad and bitter ones.

To an Englishman the theatre of operations was full of interest, for it was along these roads and lanes and through these charming old towns and pretty villages that the 30,000 Englishmen of Waterloo fame, tramped to the fair capital of France.

The troops engaged consisted of the 1st and 2nd Army Corps, whose headquarters are at Lille and Amiens respectively; and at the time of my arrival at Arras, the brigade and division manœuvres were already finished, and the 1st Corps, assembled near Arras, was about to be launched against the 2nd Corps (White Caps), which had concentrated in the direction of Chaulnes and Roye, south of Péronne. Besides this, two cavalry divisions were being exercised, and later on a scratch corps, assisted by another cavalry division, was formed, against which the combined 1st and 2nd Army Corps manœuvred.

On the 6th September, the 5th Cavalry Division (attached to 1st Corps) and 1st Cavalry Division, which belonged to the Southern Corps, had already gained touch of each other, the "idea" being that the 2nd (or Southern) Army Corps was an invader, against which an army formed in the North of France was marching; the Southern Cavalry Division had established itself north of the Somme—one of France's bulwarks, as it has been aptly called—and the day previous (Sunday, the 5th September) had fought an action with the Northern Cavalry near Monchy-au-Bois, the Northerners getting decidedly the worst of it and being put out of action for the rest of the day.

The morning of Monday, the 6th, when I started on my bicycle, was a dreadful day—rain, rain, rain. Leaving Arras by the main road leading south to Bucquoy, I soon came up with the baggage of the 5th (Northern) Cavalry Division halted on the road not far from the railway bridge, waiting for orders. In previous years everyone has known long beforehand where he will be quartered, but this year a nearer approach to active service conditions was attempted and billets were only assigned at the last moment to the cavalry. Pushing on towards Monchy, I met the 9th Cuirassiers returning to billet in Adinfer, where headquarters were to be that night. The French Cuirassiers wore the cuirass on all occasions at the manœuvres, which must tell on the horses, though they looked in excellent condition considering the weather. Lieutenant Hugh Wray, of the 40th Regiment, in his interesting diary of the Waterloo Campaign, mentions having picked up one of the French cuirasses after that battle and worn it for part of the ensuing day; but he soon found that a cuirass on foot is not quite the same thing as on horseback, and got rid of it. He adds:—"Our soldiers cooked their beefsteaks in the steel cuirasses, which completely answered the purpose of a frying-pan"!

At Monchy I found the rest of the division, one brigade of Dragoons, one brigade of Hussars, and the remaining Cuirassier regiment, rapidly passing through to regain quarters; the Dragoons armed, front rank with lance, sword, and carbine, rear rank sword and carbine only, the carbine carried slung on back. The Cuirassiers carry their carbine in a bucket in the same place as our own cavalry; but owing to its being hung rather lower and there being no strap attached to the lower part of the bucket as with us, it flops about, even when at a walk, in a very ungainly way, and can hardly prove an unmixed joy to the horses. There was also a party of the 43rd Infantry in Monchy, and a few 16th Chasseurs-à-pied.

Leaving Monchy, I struck southwards again through the villages of Hannescamp, Fonquevillers, Gommecourt, and Hébuterne in search of the 5th Dragoons (Corps Brigade of 2nd Army Corps—Invaders), as I had an introduction to an officer of that regiment, and finally came up with them at Sailly-au-Bois, where they had only just arrived and were hunting up quarters for themselves and horses; my friend told me they had only received their billeting orders an hour previously. Whilst talking to him the baggage wagons turned up—a punctual performance, considering the awful weather, rain still falling in torrents. Sailly is marked on the map as containing 771 inhabitants, so that the 3 squadrons of 5th Dragoons, numbering probably about 270 men, must have been pretty tightly packed. In most English villages of the same number of inhabitants it would prove a great problem to put up 270 horses, but hereabouts the farmhouses are generally large, roomy places, enclosing a big courtyard, or rather farmyard, the roof being carried right round and covering a big entrance-gate, where usually ten or a dozen horses could be packed.

I heard from my friend of the 5th Dragoons that the regiments of the 5th Cavalry Division (General Duhesme), which I had just seen at Monchy, had had a very hard morning's work. Leaving their own quarters at 1 o'clock that morning they had gone straight for their enemy, the 1st Cavalry Division; found him at break of day carelessly guarded, and totally surprised and routed him. His two H.A. batteries were taken, and one of the dailies said—with what truth I know not—that the Southern Squadrons were thrown into such a state of confusion that more than an hour was needed to restore order. Anyhow the enterprise was adjudged to have perfectly succeeded, and so completely had General Duhesme turned the tables on his adversary that the Southerners were put out of action for the rest of the day, and the Northerners were able to roam about at will and collect information as to the whereabouts of their opponent's infantry. In this process they had, of course, come across the Southern Corps Brigade of Cavalry (of which the 5th Dragoons formed part), beaten them, and put them out of action. Thereupon, General De France, umpire-in-chief, directed General Duhesme to take command of an advanced guard, consisting of the 5th Cavalry Division and the 1st (Corps) Brigade of Cavalry, the 16th Battalion of Chasseurs (Rifles), the 43rd Infantry of the Line, six field batteries, and two Horse Artillery batteries, and attack the leading infantry of the 2nd (Southern) Army Corps, who were advancing without any cavalry to help them. The situation thus produced was curiously similar to that preceding the battle of Bapaume in January, 1871, except that the *rôles* were reversed, for in 1871 it was General Faidherbe who marched without cavalry to attack the 8th German Corps covering the siege of Péronne.

In all probability it was the lack of cavalry, more than anything else, that robbed Faidherbe of the fruits of his success at Bapaume. Had he even made use of his one regiment (the 11e Dragons de Marche) he might have kept touch with the Germans, and have gained information of their retreat. Xenophon, the gentleman Volunteer of Athens, and Washington, the Militia colonel, managed these things better than Faidherbe.

The advanced guard of the Northern Army had hardly been set in motion when, on account of the weather, General De France (Director-General of the Manœuvres) gave orders for the troops to return to quarters.

As there was nothing more to be seen in these parts I determined to go on and pay a flying visit to the old town of Péronne, fortified by Vauban, a place of much interest from the fact of its capture by the Guards in 1815 and its bombardment and capture by the Germans in 1871, a few days after the battle of Bapaume. Péronne owes its importance to its situation at one of the chief crossing-places of the Somme; for here two *routes nationales*, as well as many roads of lesser importance, meet, forming an important bridge over the wide, marshy river as it crawls along with innumerable turnings and twistings on its way to the sea.

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and Hole 20′ × 15′.

a Mat Rolled Up

Admiral Class. Sca

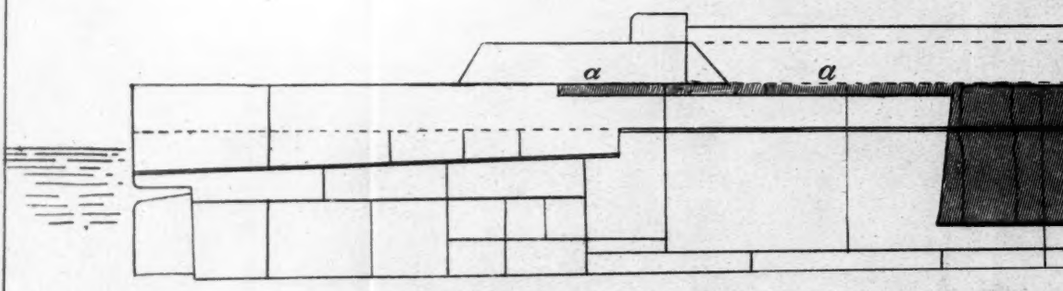

Fig. 1.

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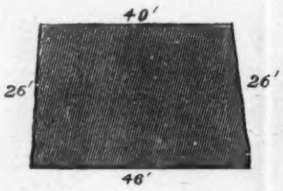

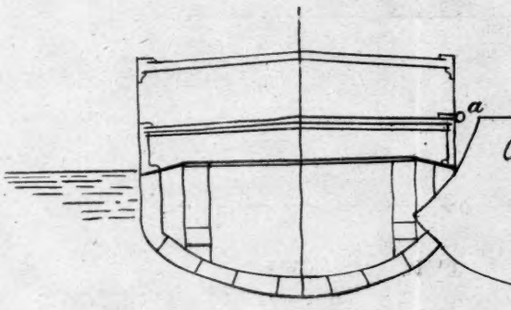

Fig. 2.

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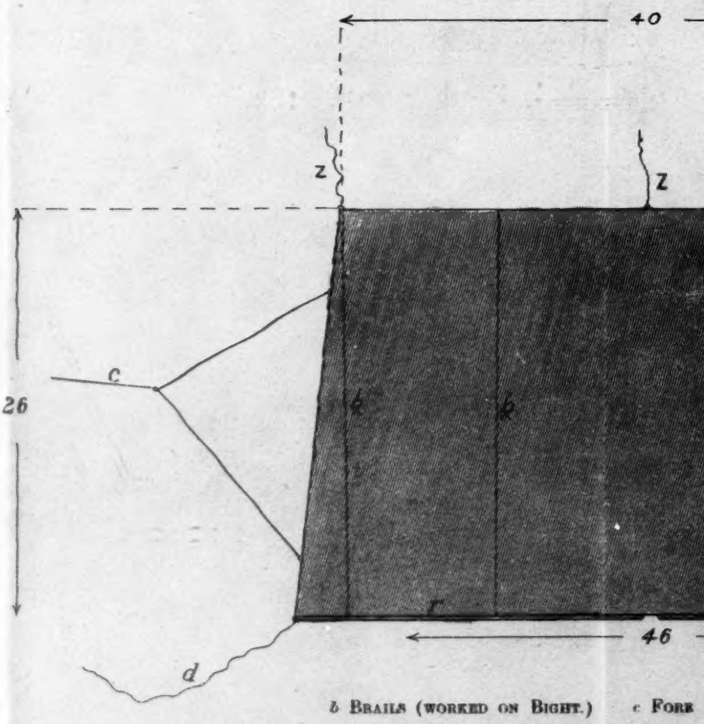

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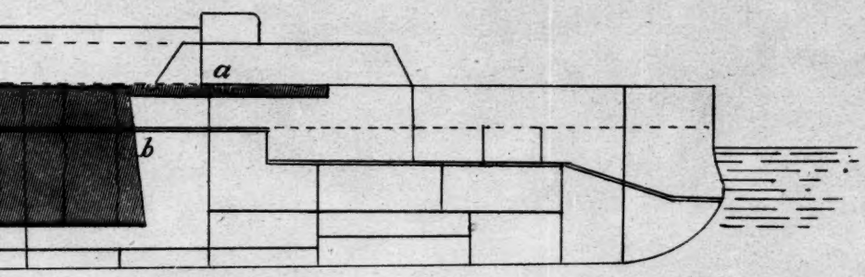

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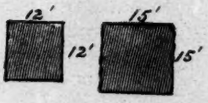

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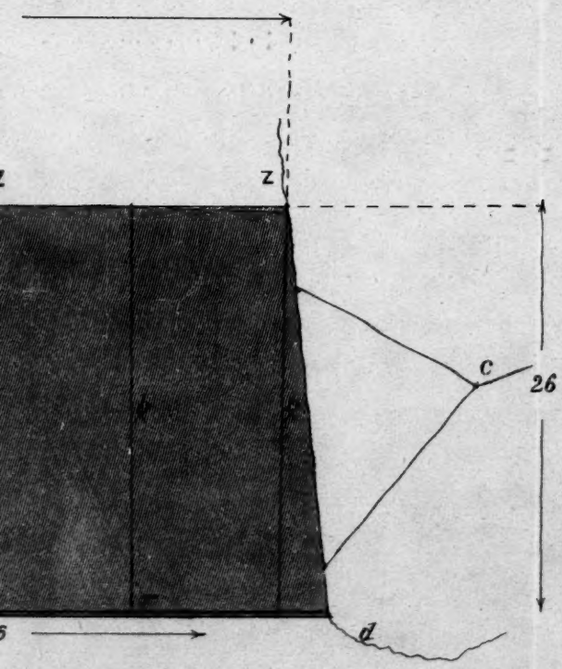


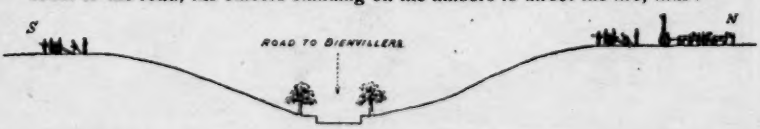
ORE AND AFTERS. *r* IRON BARS.

GTH, FOR BENDING BOTTOM LINES TO
DDITIONAL FITTING.

NECESSARY.)

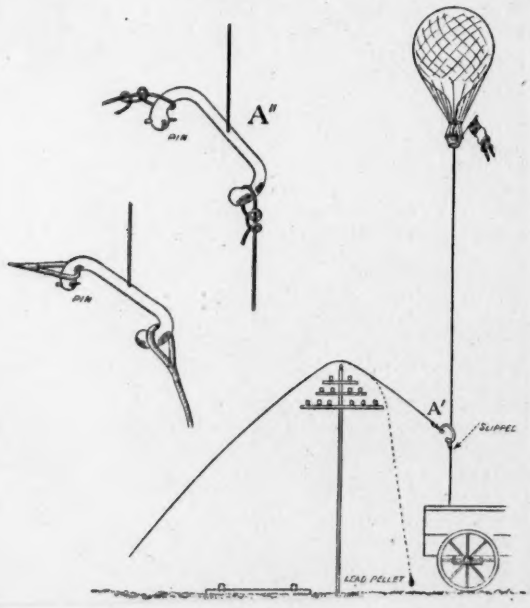
The one and only train left Péronne at 8.30 p.m., and landed me *viâ* Amiens (!) back at Arras at 1.30 a.m. Tuesday. To Monchy I retraced my steps on this day, as it was probable that the expected battle between the two corps would take place there; and I was not disappointed, for the fight was just developing when I arrived. The 1st Corps had, with their advanced guard, seized the strong defensive position on the line Monchy—Bienvillers—Pommier, the 43rd at Monchy on the left, 16th Chasseurs on the right at Bienvillers, the balloon rising above the village of Berles-au-Bois about $1\frac{3}{4}$ miles away from Bienvillers. The theatre of operations, although in appearance fairly level, is much furrowed by innumerable folds in the ground, the villages, which are numerous, being situated mostly in the bottom of these depressions, and so thickly timbered that from even a short distance nothing appears but a thick grove of trees, with the inevitable church spire (so dear to the gun-layer's heart) peeping out of the midst. This configuration of the ground was very favourable to an attacker, enabling him to mass his forces almost unseen quite close to the defence. But the 4th Division, which formed the right attack of the Southern General (2nd Corps), failed lamentably, as will be seen later, to make use of these natural advantages. The village of Monchy was barricaded and held by the 43rd Regiment, their first line being strongly entrenched on the high ground south-east of the village. Monchy forming the *point d'appui* on this flank, the trenches were broken up *en échelon* and the left "refused," intervals being left between the trenches for counter-attacks. These trenches were *real* live ones—not Aldershot canvas ghosts—which the 43rd had dug that morning; they very much resembled our ordinary shelter-trenches, being apparently about 18 inches deep, but I hardly think they were as much as 2 feet 6 inches wide; they were probably not more than 1 foot 6 inches across; there was a small berm given of 3 or 4 inches. It is difficult to criticise when one is ignorant of the orders, etc., issued for a fight; but what now happened would have been quite impossible in real war. The Southern Commander apparently struck Bienvillers with the 3rd Division almost before the 1st Corps (Northerners) had come into line with their advanced guard (16th Chasseurs), and at once seizing his opening, tried to turn that village; but the 1st Corps, just at this crisis, arrived to the rescue of its advanced post at Bienvillers, and the Southern Commander, foreseeing a tough fight at this point, I presume, called to his aid his other division, which was coming into action against Monchy. Stationed at Monchy, I saw this division deploy for attack, with supports, reserves, etc., execute a processional flank march across the whole front of the 43rd Regiment, which treated them to half-an-hour's peppering at 1,000 metres range—at least, that was the elevation I heard given to his men by a young subaltern of the 43rd, and he wasn't far out. The losses during this flank march in full view would have been enormous in real war. The *Avenir Militaire* put it very neatly when, in its comments on this fight, it said:—"The Chief of the 2nd Corps must have pondered long on the advantages of interior concentration, and on the disadvantages attending combined concentrations on the field without a previous thorough knowledge of the enemy's position." The 3rd Division, notwithstanding that it took this eccentric short cut, is said to have arrived much too late to the assistance of the 4th Division, owing to the heavy state of the ground over which it had to move.

Leaving Monchy, I started off for Bienvillers, as the fire was getting very hot in that direction, and on the way I found a lot of artillery on both sides of the road, one brigade division on the north side firing right over the heads of those south of the road, the officers standing on the limbers to direct the fire, thus:—



The batteries north of the road were about 500 yards behind, and, if anything, on a rather lower level than those to the south, over whose heads they were firing. Soon after getting to Bienvillers, where there was a very hot fight going on in the village itself, and which the Southerners had already practically carried, the "Cease-fire" was sounded. A fat little colonel near me made his buglers sound it again and again, as heavy firing continued on our right. At last he gave up in despair, remarking:—"They may fire away for the whole of to-morrow, for all I care, if it amuses them."

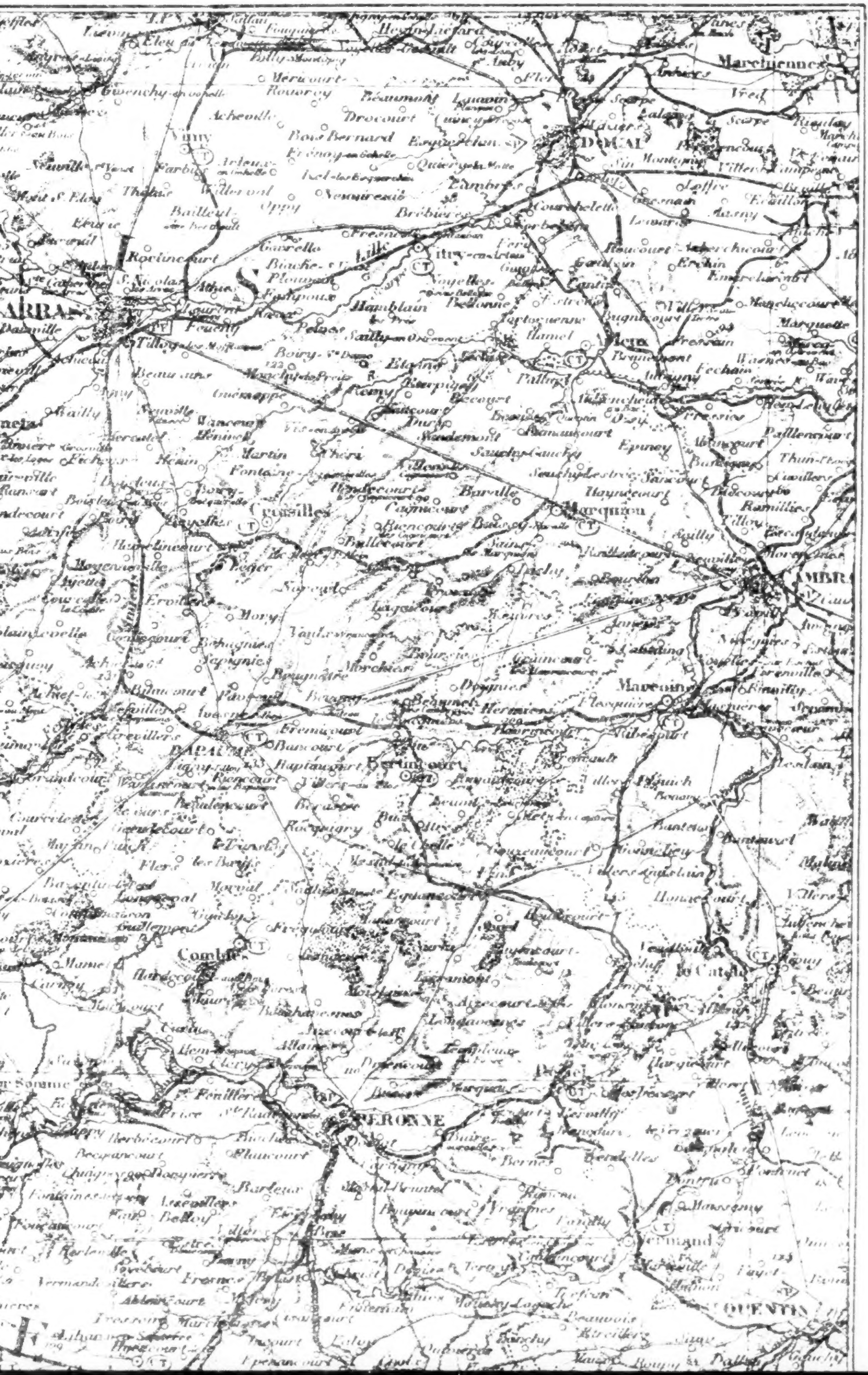
It has been mentioned above that it was the 3rd Division which took part in the attack on Bienvillers. Before going further, it is worth noticing the composition of one of the regiments of this division—the 320th. For every Line regiment of the Active Army quartered in France there is a corresponding "reserve" regiment, composed of men who have done their 13 years in the "active" Army (3 with the colours, 10 in the Reserve). This "reserve" regiment bears the same number as the "active" regiment, with 200 added; thus, the "reserve" of the 120th Infantry of the Line is numbered the "320th." An epidemic having broken out in the 120th at Verdun, it was determined to call up the 320th. This was done with the help of a company of the 120th detached at Péronne and the reservists of the 120th. After a fortnight's drill at Péronne, the 320th thus constituted left on the 5th September to join in the manœuvres, taking the place of the 120th. The writer very much regrets that he saw nothing of this regiment, but it is believed to have won golden opinions from officers of the Active Army. One officer is reported to have said:—"There is our real Army of to-morrow." Many of the reservists were probably between twenty-five and thirty-two years of age, but I did not ascertain which "classes" were called up, so it is impossible to give exact ages. The men, it appears, rejoined the colours with the greatest alacrity; but some unpatriotic employers, disagreeably surprised by the sudden departure of their employées, informed them they had no further



MAP COVERING THE GRO

GROUND OF THE FRENCH MANŒUVRES.

Plate 17



need for their services. This disgraceful conduct was universally execrated throughout the regiment.

After many years' disuse, *tentes-abris* were again experimentally issued to the 1st and 2nd Army Corps, in the proportion of 75 per company and 40 per battery. A subaltern of the 72nd told me they were anything but pleasant to sleep under. Espying the balloon in the direction of Berles-au-Bois, I now made off in that direction. When I got up to it the sappers were just hauling it down preparatory to moving off. The officer in charge had stupidly chosen a spot on the road lined by tall poplars, the consequence being that soon the wire hawser got mixed with the trees, and the balloon had to be let out again, transferred to another hawser, and pulled down in an open field a few yards away—a careless waste of time. One of the civilians standing by observed pertinently:—"They ought to have some spikes with them and some sappers trained to ascend trees by this means, then they would not get fixed up like this." On reaching the railway-crossing near Beaumetz-les-Loges, I stopped to see how they were going to get the balloon over the telegraph wires. The wagon with winding-engine to which the balloon was attached (about 20 or 30 yards up) was halted close to the railway; then from the far side of the telegraph wires, a light line having at the end a lead pellet was thrown over, and a stout rope attached and made fast, as in sketch. The balloon was then allowed to run up, the original hawser slipped, and the balloon was thus transferred to the rope on the far side of telegraph wires. It was then at once pulled down (by man-power) and attached to a second wagon carrying stores, etc., and we were once more *en route*. At Beaumetz I found the wagons (six) carrying the cigar-shaped gas cylinders.

About midway between Beaumetz and Arras I passed the brigade division of field howitzers, halted by the side of the road. These guns were rather kept out of sight during the manœuvres, but took part in the march-past at St. Quentin. They are easily distinguished from the ordinary field guns, being made of polished bronze, and the gelatine buffer situated under the gun gives the whole a quaint appearance. The gelatine buffer, in appearance similar to that of the French heavy position artillery, looks like a small gun fixed underneath its parent, and has thus given rise to the joke about its being a "quick-firer." They are known as "Modèle 1890, court 120," the calibre being 120 millimetres (4¾ inches). Mélinite shells would be used on service, and we know what destruction they would cause from the disastrous havoc wrought in the Queen's palace at Antananarivo by a couple of shells filled with this high explosive fired from mountain guns.

The next day (8th September) was a day of rest for the troops. The foreign *attachés* were entertained at luncheon by General de France in the hotel where I was staying at Arras, and I had the pleasure of listening to the excellent band of the 3rd Regiment of Engineers, which discoursed sweet music under the trees in the courtyard of the hotel during the function.[1]

(To be continued.)

AUSTRIA-HUNGARY.—It has been ordered that a repeating carbine of 8 millimetres (model 1895) is to be served out to the technical troops, namely, the pioneers, the railway and telegraph regiment, the foot soldiers of the field artillery, the

[1] There is a record of an interesting musical competition which took place at Arras—perhaps at this very hotel—in 1816. "The band of the regiment" (7th Royal Fusiliers), "with five others, viz., the bands of the Royal Welsh Fusiliers, the 43rd Light Infantry, and the three Danish regiments, was invited to Arras on the 25th August, the anniversary of St. Louis, by the prefect of the department, the mayor and corporation of the city, to compete for a gold medal. The judges declared in favour of the 7th Fusiliers, and Mr. Ledsam, the bandmaster, was invested in due form with the trophy of the band's victory." A copy of the certificate is given in the history of the Royal Fusiliers.

fortress artillery, and the administrative corps. The carbine will be fitted with a bayonet, except in the case of men of the field artillery. The special sword, known as that of the pioneers, with which the technical troops have been armed, is abolished, except in the case of soldiers who do not carry tools. The distribution of the new weapons will begin with the pioneers and the regiment of railways and telegraphs.—*Revue Militaire de l'Étranger.*

The new field gun which was tried this year at the grand manœuvres held at Totis is a modification of the present gun, and will considerably increase rapidity of fire. It is said to have fired six rounds a minute when carefully laid. The carriage is furnished with a brake, already described as being partly composed of a spade or fork which enters the ground when the piece recoils. The guns designed for quick-firing are furnished with a special safety arrangement to prevent premature explosion, and to make it impossible to fire before the breech is perfectly closed. At present, however, the old guns are temporarily fitted for quick-firing, pending the introduction of the new armament which is in contemplation.—*Revue du Cercle Militaire.*

The whole arrangement for the provisional adaptation of the old pattern field gun costs not more than 25 florins per gun. To prevent premature firing, a lever attached to the breech mechanism is so placed that it covers the vent until the breech is securely closed. It then moves and permits the insertion of the tube. The *Armeeblatt* is of opinion that, with the above-named improvements and with the new shrapnel, the Royal and Imperial Artillery can afford to wait for the results of experiments which are being made elsewhere with quick-firing guns.

The Common Council of the "Ever-loyal" Neüstadt, near Vienna, has decided to build a barrack for a cavalry regiment in honour of the Jubilee of the Emperor Francis Joseph, which will be celebrated in 1898. The scheme has been settled between the Council and the War Ministry, the estimated cost being for the land 70,000 florins, and for the building 250,000.—*Militär-Wochenblatt.*

The Emperor has authorised the publication of a collection of historical marches and other instrumental music, for the use of the Austro-Hungarian Army. Among the historical marches, which have already been recognised as "regimental," may be mentioned "The Trautenau Battle-march," which is the regimental march of the 1st Infantry Regiment; the "Alexander March," that of the 2nd Infantry Regiment; the "Archduke Charles March," that of the 3rd; "Custozza March," of the 7th; "Friedländer," of the 11th; "Lacy," of the 22nd; "Loudon," of the 29th; "Wagram," of the 42nd; "Prince Eugene," of the 13th Dragoons; "Windisch-Grätz," of the 14th; "Radetzky," of the 5th Hussars; and so on.—*Militär-Zeitung.*

DENMARK.—The ordinary War Budget for 1897-98 amounts to 10,011,744 crowns, or nearly 180,000 crowns less than in 1896-97, the reduction being due to the decision not to hold a grand manœuvre in the coming year. The extraordinary budget amounts to 1,213,300 crowns, but the Chamber by its vote has reduced the sum to 772,800. The Chamber made a similar reduction last year. These economies have been effected by diminishing the manufacture of small arms (model 1889), and ammunition, and by restricting the purchase of guns, projectiles, and armour plates, for the fortifications of Copenhagen.—*Revue Militaire de l'Étranger.*

FRANCE.—The conclusion arrived at with regard to the employment of the cyclist company during the last manœuvres is, that its greatest advantage is to be found in concert with cavalry. It is useless to repeat what some fancied could be done by cyclists in exploration, or rather in reconnaissance. The cycling scout is a myth that will not bear discussion in the present day. The *rôle* of the cyclist infantry does not exist except in close connection with the cavalry. At night it

guards the cantonments by means of small cossack-posts circulating on the roads without noise and without fatigue, possessing also the advantage of a search-light. On the march it forms the advanced guard of the cavalry, moving by successive bounds from one position to another, and assuring the troops of the points of support on which they can concentrate. It also acts as a flying bridge-head every time a defile has to be passed. In pursuit its rapidity enables it to gain points on the line of retreat in anticipation of the enemy. It could cover the retreat of cavalry if necessary. No tactical unit can compare with it for activity. In fact it is ubiquitous. But such units cannot be improvised in a day, and the company already formed should be regarded as the starting-point for the formation of a special and complete force.—*Revue du Cercle Militaire.*

The following account of the parentage of the late General Bourbaki is extracted from a recently published book: "Le Général Bourbaki, par le Commandant Grandin." It was generally known that Bourbaki was of Greek origin, but it was not usually known how as a foreigner he obtained a commission in the French Army. The grandfather of the Marshal was a pilot of Cephalonia, named Santer Bourbaki, who made frequent voyages between the Archipelago and Marseilles. In his business he was connected with M. Clary of that town, one of whose daughters had married Joseph Bonaparte, while another was to marry Bernadotte and become Queen of Sweden. Through M. Clary, Santer Bourbaki became known to Joseph Bonaparte, with whom he formed a friendship. About this time, Napoleon being in Egypt, his elder brother Joseph, seeing that the mistakes made by the Directory had compromised its position, and believing that if Napoleon were on the spot things might be turned to his advantage, wished to communicate with him; but communication with Egypt was at this time a very difficult matter, secrecy was necessary, the distance was great, and the sea was covered with English cruisers. In his perplexity Joseph Bonaparte bethought him of his friend Santer Bourbaki, and decided to trust him with despatches for Napoleon, advising his return. It was a dangerous enterprise, but the Greek sailor was perfectly successful. Leaving port in a small vessel flying a neutral flag with Beyrout for its avowed destination, he reached the coast of Syria, and then by keeping in close with the land so as to be able to fly to the nearest shelter at the first alarm, he coasted along, reaching Alexandria in safety. A short time after receiving the despatches Napoleon left Egypt, and arriving safely in France accomplished the *coup d'état* of the 18th Brumaire. Before embarking he had promised Santer Bourbaki the appointment of Consul at Cephalonia, his native island, but forgot the promise, and Joseph Bonaparte had to remind Talleyrand of it in 1802. Shortly after this the Greek sailor became seriously ill, and, feeling death approaching, he wrote to Bonaparte, who had now become Emperor, recommending his two sons to his care. Napoleon recalled his promise, and gave the Consulate of Cephalonia to the youngest of the two children, the eldest, Constantine, being admitted to the military school at Fontainebleau. Thanks to Joseph Bonaparte, who never forgot the service that had been rendered by his father, Constantine had rapid advancement, and became Colonel of the 4th Infantry Regiment and A.D.C. to his protector, now made King of Spain. At the Restoration, Colonel Constantine Bourbaki had to leave the Army, and doubtless remained with his protector, for when Joseph Bonaparte wished to warn his brother that the Allies proposed to remove him from Elba to some more distant place of imprisonment, he turned to Constantine in the same way as he had previously turned to his father, and asked him to be the bearer of the message. The situation at sea was somewhat similar to what it had been in 1799. French, Sardinian, and English cruisers guarded all the approaches to the Tuscan Archipelago, but the Colonel owed too much to the ex-King and to Napoleon to hesitate. He proceeded to Genoa, and there hired a felucca, and, disguising himself as a Genoese sailor, with one man for crew, put to sea, and on a dark

foggy night of February, 1815, succeeded in reaching Porto Ferrajo. He was at once admitted to Napoleon's presence, and delivered his message, and a short time afterwards Napoleon disembarked in the Gulf of Juan and reconstituted his Army, in which Colonel Bourbaki took his previous place. After Waterloo, Bourbaki left the Army and settled at Pau, where he married, but being constantly under the surveillance of the police of the restoration he had to lead a wandering life. When Greece rose against the Turks, Constantine Bourbaki, remembering his Greek origin, applied to the Government to be reinstated in his rank and to be appointed to the Expeditionary Force proceeding to the Morea; but though the Chamber of Deputies supported his application, the War Minister, General Clermont-Tonnerre, declined his services. In despair the Colonel enrolled himself as a volunteer in the Greek forces; he took part in the defense of Athens, but being taken prisoner in a sortie he was summarily decapitated by the Turks. His son, the future Marshal and hero of Africa and the Crimea, and commander of the Imperial Guard in 1870, was taken under the protection of Colonel Viscount de Rumigny, who became A.D.C. to the Duke of Orleans in 1824, and when the revolution of 1830 raised this Prince to the Throne of France, Colonel de Rumigny was able to enter his pupil at la Flêche, and his future was henceforth assured.

The care of the soldier's feet is an important item in military training, for marching is seriously affected by galls, sore feet, blisters, etc. After a march the feet should be cleaned with a moist cloth. Mutton fat or a mixture of three-quarters mutton fat and a quarter olive oil well rubbed in keeps the feet in good condition. Galls should be rubbed with grease, and covered with a greased rag, etc. When rubbing the limbs after fatigue, they should not be exposed to the air; and they should be rubbed in camphorated oil. Camphorated brandy is to be avoided, as it dries up the skin. When marching in hot weather, the ranks should be opened, tunics unbuttoned, and the pace should be slow. Sleep at night with boots on, but unbuttoned. A man recovering from sunstroke should never be exposed to the cold air. When resting during the march, men should always get in the shade. When wet through from perspiration after a march the clothes should be changed without delay. Marching in the rain and in winter leads to many diseases of the respiratory organs; on such occasions it will be found advisable to take weak brandy and water, or brandy and coffee. Instructions on these various points should be periodically given to soldiers, and might, with advantage, be included in the Drill Book.—*Journal des Sciences Militaires.*

It was stated in the Chamber a few weeks ago, that in the event of mobilisation the Army would be short of from 20,000 to 30,000 horses. Whether that be so or not, it is certain that the Government is now paying about 100 francs more than formerly for Army horses, and that the sum allowed for the purchase of remounts has risen to 1,200,000 francs. Some experts say that every attention is paid to the sires, and too little to the mares; the result being that common and inferior horses are rife in the French cavalry, and that the horses of the latter are far excelled in breeding and conformity by those of the German Army.—*Militär-Zeitung.*

GERMANY.—In a circular dated 8th July, 1897, the War Minister instructed the 2nd and 9th Army Corps to make trial of means for securing the employment of soldiers on leaving the colours. The commanders of Landwehr districts and the old soldiers' associations will be the channels between the troops and the employers of labour. Should success attend this experiment, which is made with a view to obviate great loss of time and money to the men, it will be continued in other corps in the coming year. General Count Waldersee, the commander of the 9th Army Corps, has issued directions to the commanders of Landwehr districts,

and likewise to the active units of the corps, with regard to the making and forwarding of lists showing where work or employment can be obtained. These lists are printed in pamphlet form, and distributed to all interested, by order of the army corps commander and without any expense to the men. The commanding officers give verbal or written certificates to their men on leaving, and are ready to answer any questions that may be put by employers. It is expected that the use thus made of the old soldiers' associations will create a bond of union between the soldiers of the present day and those who have already served.

The Minister of War issued a memorandum on the 6th August, forbidding under-officers and soldiers to take part in any re-unions, gatherings, or functions whatsoever without previously obtaining authority; or to lend themselves to any demonstrations of a socialistic or revolutionary character, such as cries, songs, etc.; or to keep in their possession, to distribute, or introduce into barracks or other military places revolutionary or socialistic papers. It is further ordered that every man of the Active Army must disclose to his superiors the presence of any revolutionary or socialistic papers in barracks or other military places. These orders apply likewise to men of the Reserves at manœuvres or musters, such men being under military law during the periods for which they are called out.

The sounds and calls in the German Army have been revised. Some of them have been modified so as to suit all arms; others are quite new, but likewise common to all arms. In the former category are the "Alarm-signal," "Adjutantenruf," and "Feuerlärm." In the latter are "Strasse frei," for leaving the left side of the road free; and "Abrücken," a special sound for returning to cantonments after manœuvres.—*Revue Militaire de l'Étranger.*

ITALY.—The instructions issued by the Italian Minister of War, to regulate the employment of cyclists, permit the commanders of army corps to use their own discretion, to a great extent, with regard to cycling duties. They will be guided by the requirements of the moment, and the general rules laid down for field service. The following are instances of the proportion of cyclists detailed for various services:—Attached to headquarters staff, 8; to the general intendance staff, 6; to the army staff, 8; to the army intendance staff, 10; to the staff of an army corps, 6; to the staff of cavalry division, 4; to all regiments of cavalry, 4 each. The engineers supply the cycles, but in case of emergency they are to be bought in the ordinary market. The general rules for the employment of cyclists, lay down that their principal object is to facilitate and expedite communication between commanders, troops, and the various accessory services. In a campaign or manœuvres their duties are many and varied, as, for example, the carrying of orders, the establishment of posts for correspondence, whether to secure the connection of columns on the march, or to carry correspondence between neighbouring columns; they are also employed on advanced posts, as scouts, and otherwise as the commander may order. The most intelligent men of at least six months' service, are selected for cyclists, and they are submitted to examination both medically and as to aptitude. Their sight must be good, their respiratory organs sound, and they must have no predisposition to hernia. They must be able to read maps, determine their whereabouts, communicate orders verbally, recognise distinctive badges, and know the formations of march. They may be either privates, corporals, or under-officers; they are clothed in the uniform of the regiments to which they belong, but their foot-gear is similar to that of the Alpine troops. Their badge is a cycle on the sleeve, in red, for the men, and in silver or gold for the under-officers. The cyclist is armed with a cavalry carbine, pattern 1891, and equipped with a despatch-bag and a special pouch to be fixed on the cycle. The knapsacks are carried in the wagons of the corps.—*Revue Militaire de l'Étranger.*

The manufacture of the new rifle (pattern 1891) has been finished so far as the

Standing Army and Mobile Militia are concerned. These arms have been turned out at the rate of 140,000 a year since 1892, when their manufacture was commenced. This production is now reduced, but the pattern is still being made for the purpose of forming a reserve and to arm the Territorial Militia in case of mobilisation. The saving thus effected will be available for the artillery, in which experiments are now being made with the view of adopting a Q.F. gun for the field batteries.—*Revue du Cercle Militaire.*

MONTENEGRO.—It has been decided to form a Standing Army in Montenegro. For this purpose an instructional battalion and an instructional battery have already been established. To the latter a captain and two under-officers from the artillery school of Turin have been attached as instructors. The army pay has been fixed at 100 florins a month for a major, 90 for a captain, and 80 for other officers. The infantry armament consists of three different patterns, and includes 30,000 Berdans, 20,000 Werndls, and 15,000 Martini and other rifles, and 20,000 revolvers. Fifteen thousand men are to be armed with the last-named weapon. The artillery is to be composed of six battalions of six mountain 75-millimetre guns on the Krupp system, a field battery of six 87-millimetre guns, and a similar battery of 75-millimetre guns. The batteries are divided into brigades in such a way that each brigade contains four mountain and two field batteries. The country has been mapped out into brigade districts, each containing from four to nine battalions. Each company commander is to assemble his company in autumn for ten days' training. The same rule will hold good for the artillery, whose firing practice must be included within the same period.

RUSSIA.—The manœuvres of the cyclist company organised by Major-General Plutzinsky have been a complete success. This must be ascribed to the fact that nearly all the men were supplied with Captain Gerard's folding cycle. The Austrian machine, which is a German imitation, and the folding frame cycle manufactured by a French house, were tried at the same time, and gave poor results. As in France, the Russian cyclist company has been chiefly employed with the independent cavalry and with cavalry on security service. The Emperor was so much pleased with their performances that he ordered them to march past him twice at the review with which the manœuvres concluded. The Minister of War expressed great satisfaction and hoped to see experiments on a larger scale next year.

A new edition of the regulations for field service is expected soon to be issued, their revision having become necessary. The present edition is dated 1881. One of the peculiarities of the Russian infantry is the existence in each corps of a special detachment of scouts, to whom are entrusted duties too difficult for the ordinary soldier. These scouts receive instruction which naturally places them on a higher level than that of the other men. It is now intended to diminish this difference by henceforth instructing as many men as possible in the duties of *éclaireurs*.

The hundredth anniversary of the death of Suvaroff will be celebrated in the year 1900, and a movement has been begun to do it in a manner worthy of the great nation and of its popular hero. There is already a monument which was erected to his memory in St. Petersburg by the Emperor Paul, and it is now proposed to establish a museum containing all obtainable objects of interest connected with his personal history.

Sixty Belgian pigeons, two months old, were handed over to Captain Falkovski at Bielostock, in order to be trained for the manœuvres. He received them in May, and at the end of three months 47 of them had been completely trained, the remaining 13 having been lost. Captain Falkovski also despatched 24 pigeons from Bielostock to Wilna ; of these, 13 arrived safely. The pigeons are separated into two groups to be used on alternate days, so as to insure

a fair amount of rest. Their management, transport, and the attaching of their despatches are confided to specially instructed men. The despatches are written in duplicate, and the pigeons are started in pairs, the flight of pairs being more rapid than that of single birds. In the course of the manœuvres 64 despatches were sent, and no bird went astray. The rate of flight is from 55 to 100 versts in the hour.—*Revue du Cercle Militaire.*

The General Staff corps of the Russian Army is composed exclusively of officers who have successfully passed through the General Staff (Nicholas) Academy. This institution, which was re-organised in 1893, is, properly speaking, not so much a general staff school as a high school for military studies. The students are divided into three classes—two general and one supplementary—the course of the last continuing a year, and being intended specially to prepare for staff duties. After two years at the academy all officers undergo an examination, and according to the marks they receive they are divided into two categories. Those in the first category receive one year's pay, and are eligible for the supplementary class. Those who return to their regimental duties are entitled to various advantages in the way of promotion, and in other respects.—*Deutsche Heeres-Zeitung.*

SERVIA.—The law of 1893 authorising an increase of the cavalry and artillery, which has been in abeyance, is now brought into operation. Each of the three existing cavalry regiments will consequently receive a fourth squadron, and the guard squadron will be doubled so as to form a regiment of two squadrons. Each line cavalry regiment consists of a commander, an adjutant, a surgeon, a veterinary surgeon, a paymaster, 4 squadron leaders, 8 lieutenants and sub-lieutenants, and from 400 to 420 men and horses. Of the artillery, 3 regiments consist of 9 field batteries of 60 to 65 men and 50 horses, while 2 regiments have 6 such batteries and 3 mountain batteries of 54 men and 18 harness animals.—*Militär-Wochenblatt.*

SPAIN.—The Spanish Chambers have authorised the creation of an 8th Army Corps district, and a credit has been inserted in the military budget for the purpose. The Minister of War has submitted the order to the Queen for signature. By this, Valladolid has become the headquarters of the 7th Army Corps, instead of Leon, while Corogne is the headquarters of the 8th Army Corps, the district of which comprises the four provinces of Galicia. To make up for the separation of these provinces from the 7th Army Corps district, the province of Salamanca has been detached from the 1st District to form part of the 7th. The divisional headquarters, previously at Valladolid, are now at Leon.—*Revue Militaire de l'Étranger.*

SWEDEN.—A commission composed of five generals and five members of each house of the Legislature, which was appointed to consider a scheme of land defence, has made the following recommendations:—That Faroe Sound be the site of a gunnery establishment, the cost of which will be 5,500,000 crowns; that the safety of the capital be secured by the completion of the fortress of Oscar-Frederiksborg, and a chain of additional works at a cost of 6,000,000 crowns; that the defences of the military harbour of Karlskrona be increased and strengthened at a cost of 2,500,000 crowns. The fortification of Gotenburg is, for the present, left an open question; 4,000,000 crowns would be required to carry it out. A similar amount would be necessary for converting the fortress of Karlsborg into a place of arms. If this were done it would have a great influence on operations in the event of war. Finally, the province of Norrland, recently more closely connected with the central parts of the country by means of the railway, has not been lost sight of. The estimated expense of the whole of the works proposed for that province amounts to 10,000,000 crowns.—*Militär-Wochenblatt.*

NAVAL AND MILITARY CALENDAR.

OCTOBER, 1897.

1st (F). Brigadier-General Jeffreys' Brigade engaged enemy at Agrah and Gat.
,, ,, 3rd Bn. West India Regiment raised in Jamaica.
,, ,, Completion of first 100 miles of railway from Mombasa to Uganda.
,, ,, Osman Digma's Dervish force retreated to Omdurman.
2nd (Sat). 184 miles of rail to Abu Hamed completed.
,, ,, H.M.S. "Flora" arrived at Plymouth with relieved crews from the Cape.
3rd (S). Brigadier-General Jeffreys' Brigade captured village of Badelai, Mahmund Valley.
,, ,, 2nd Bn. Rifle Brigade arrived at Malta from England in the transport "Avoca."
,, ,, 2nd Bn. Worcestershire Regiment embarked at Malta for Bermudu in the transport "Avoca."
,, ,, 1st Bn. Grenadier Guards arrived at Gibraltar in the transport "Simla."
4th (M). 1st Bn. Cameron Highlanders left Gibraltar for Egypt, and 1st Bn. North Staffordshire for Dagshai, Punjab, in the transport "Simla."
5th (T). Launch from New Admiralty Yard, St. Petersburg, of first-class gun-boat "Gilyak" for Russian Navy.
6th (W). Tirah Field Force, under General Sir W. Lockhart, reached the Kohat Pass.
7th (Th). Mohmand Expeditionary Force broken up.
,, ,, H.M.S. "Powerful" left for China.
8th (F). 2nd Bn. East Lancashire Regiment arrived at Bombay in the transport "Nubia."
10th (S). 1st Bn. Cameron Highlanders arrived at Alexandria, in the transport "Simla."
11th (M). Attack on Mandalay Fort by a gang of Burmans.
12th (T). H.M. ships "Trafalgar" and "Inflexible" paid off at Portsmouth.
,, ,, H.M.S. "Pearl" left for West Indies.
,, ,, Launch of torpedo-aviso "Dunois" at Cherbourg for French Navy.
13th (W). Tirah Expeditionary Force advanced from Kohat.
,, ,, Commencement of trial, at Kimberley, of the chief Galishwe and other Bechuana rebels.
,, ,, General Annual Return of British Army issued.
,, ,, Launch of first-class battle-ship "Canopus" at Portsmouth.
,, ,, H.M.S. "Mohawk" left for Australian station.
,, ,, H.M.S. "Trafalgar" commissioned at Portsmouth as port guard-ship.
14th (Th). Buluwayo railway reached the terminus at Buluwayo.
,, ,, "J" Battery, R.H.A., and 52nd Field Battery, R.A., left Southampton, in the transport "Dilwara" for Madras, Jubbulpore, and Bengal, respectively.
15th (F). Report received that the British force sent into the Lagos Hinterland had occupied various posts on the N.W. frontier, the French retiring to Boussa.
17th (S). Telegraph completed to Berber.
,, ,, 2nd Bn. Worcestershire Regiment arrived at Burmuda, in the transport "Avoca."
18th (M). Brigadier-General Kempster's Brigade engaged with Afridis and Orakzais, near Dargai.

19th (T). 2nd Bn. Leinster Regiment left Bermuda for Halifax, in the transport "Avoca."

20th (W). Severe action at Chagra Kotal, re-capture of Dargai ridge. British and Native loss, 195 killed and wounded, including 4 British officers killed and 11 wounded.

21st (Th). 2nd Division Tirah Field Force arrived at Kharappa.

,, ,, H.M.S. "Edgar" commissioned at Devonport for relief services.

,, ,, H.M.S. "Flora" paid off at Devonport.

22nd (F). 1st Bn. North Staffordshire Regiment, for Dagshai, Punjab, arrived at Bombay, in the Transport "Simla."

24th (S). 2nd Bn. Leinster Regiment arrived at Halifax, in the transport "Avoca," and 1st Bn. Royal Berkshire Regiment left Halifax for Barbadoes, in the same vessel.

25th (M). 1st and 2nd Division Tirah Field Force concentrated at Khangarbur.

,, ,, Launch of first-class cruiser "Guichen" at Saint Nazaire for French Navy.

27th (W). Death of H.R.H. the Duchess of Teck, at White Lodge, Richmond, aged 64.

,, ,, 11th Field Battery, R.A., for Ferozepore, Punjab, and 25th Field Battery, R.A., for Bangalore, Madras, left Southampton, in the transport "Dunera."

,, ,, Launch at Rochefort of third-class cruiser "D'Estrées" for French Navy.

29th (F). Capture of the Sempagha Pass, by the Tirah Field Force.

30th (Sat). Decided that Kassala be occupied by Egyptian troops.

,, ,, Marshal Blanco superseded General Weyler in the command of the Spanish forces in Cuba.

31st (S). Capture of Arhanga Pass by the Tirah Field Force.

,, ,, Four Egyptian gun-boats made a reconnaissance at Metemneh, and engaged the forts.

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval.* Buenos Aires: August and September, 1897.—Has not been received.

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens.* No. 11. Pola and Vienna: November, 1897.—"Towing Experiments in the New Danube Ship-Canal by the Iron Gates." "A Revolving-Field Range-Finder." "The Regulation of the Compasses at Night and in Fog." "On the Methods of the more Modern Nautical Astronomy." "Battle-ships and the Torpedo." "The French Naval Estimates for 1898." "Launch of the German First-class Battle-ship 'Kaiser Wilhelm II.'" "A New Method of Rapid Telegraphy by means of an Alternating Current."

FRANCE.—*Revue Maritime.* Paris: September, 1897.—"Note on the Study of Relative Movements *à propos* of an Engagement between two Ships." "The old Harbour of Cape Breton." "A Dynamometric Regulator for Steam Engines at High Speed." "French Oceanographers." "Naval Policies." "The English Naval Manœuvres for 1897." "The latest U.S. Battle-ships." "The Maritime Fisheries."

October, 1897.—"The Geometry of Diagrams" (*continued*). "The English in the Mediterranean (1793)." "Note on the Problem of Geometrical Tactics." "Change in Metals due to the Action of Sea-water." "Naval Policy" (*continued*). "Notes on Naval Strategy." "Artillery Tactics and Evolutions when Fighting at Long Range." "The Maritime Fisheries."

La Marine Française. Paris: 15th October, 1897.—"A Last Word on the French Naval Manœuvres." "The Budget of the Navy." "Naval Boilers." "England on the Lower Niger." "The Extra-Parliamentary Enquiry into the Navy."

Le Yacht. Paris: 2nd October, 1897.—"The Oceanography of the Sea of Marmora." "Yachting Notes." "The new Spanish Cruiser 'Rio de la Plata.'" 9th October.—"The Aerial Torpedo." "Yachting Notes." "The new Battleships 'Charlemagne' and 'Gaulois.'" "The Naval Estimates." 16th October.—"The Naval Estimates for 1898." "Yachting Notes." "The Italian Armoured-cruiser 'Giuseppe Garibaldi.'" 23rd October.—"The Speed of Battle-ships." "Working Capital for Supplies for the Navy." "The two new fast German-Lloyd Mail-steamers." 30th October.—"The Necessary Speed for Ships-of-War." "The new Cruiser 'Guichen.'" "Yachting Notes."

Le Moniteur de la Flotte. Paris: 2nd October, 1897.—"Questions of the *Personnel*." "Colonial Notes." 16th October.—"Les Compétences." "The Navy in Parliament." "The D'Eckmühl Lighthouse." "The Colonies." 23rd October.—"The Trans-Atlantic Mail-boats." "Naval Medical School." "The Navy in Parliament." "The Chateaudun Monument." "Inauguration of the D'Eckmühl Lighthouse." "The Superintendence of the Fisheries." "The Fisheries and Ostriculture." "The Colonies." 30th October.—"Service in the Field." "The Higher Naval School." "The Explosion on board the 'Bélier.'" "Position Lights."

GERMANY.—*Marine Rundschau.* Berlin: November, 1897.—Has not been received.

ITALY.—*Rivista Marittima.* Rome: October, 1897.—"Above-water and Submerged Discharges for Torpedoes." "Mahan and Callwell—General Considerations on." "Notes on Multiple Screws on Single Shafts." "Rapid Telegraphy and the Synchronograph." "The Encounter at Modone—Incident of the Veneto-Genoese Struggle, 1403." Letters to the Director:—"On the Quick Coaling of Ships-of-War." "The Application of Electricity in War-ships." "Water-tube Boilers." "Naval Notes, Home and Foreign." "Mercantile Notes." "Notices of Books," etc.

L'Osservatore Navale. Palermo.—Has not been received.

SPAIN.—*Revista General de Marina.* Madrid: October, 1897.—"The Electric Installation on board the Battle-ship 'Carlos V.'" (*concluded*). "Reorganisation of the Engineering Staff of the Fleet." "The Classification of English Ships-of-War." "Geographical-Medical-Social Study of the Island of Balabac" (*continued*). "Mr. Langley's Aero-Dromes." "The Victory of the Projectile over Armour." "Some Notes on Water-tube Boilers." "Trials of the English Cruiser 'Terrible.'" "On the Ventilation of Ships." "The Squadron of Operation in Cuba." "Conclusion of the Vocabulary of Powders and Explosives" (*continued*).

MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung.* Vienna: 1st October, 1897.—"Stagnation in Promotion." "Field-Marshal Ludwig William, Margrave of Baden-Baden." "The New Swiss Infantry Knapsack." 9th October.—"The Austrian Landwehr-Budget for 1898." "Field-Marshal Ludwig Andreas Count Khevenhüller von Aichelburg auf Frankenburg." "The Torpedo-boat Disaster in the North Sea." "Working Duties in the French Army." 17th October.—"The Training of Recruits." "The Soldier-servant." "Signalling in the Field." 25th October.—"A Few Words on the Cadet Schools." "An Assemblage of Officials." "The Unveiling of the Kis-Megyer Memorial." "War Organisation of the Italian Custom's Officials."

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: October, 1897.—"The Wounding Capacity of Exercise Ammunition." "Considerations on Practice against Masked and Undiscoverable Targets."

Organ der Militär-wissenschaftlichen Vereine. Vienna: October, 1897.—"Protection against Infectious Diseases." "The Infantry Regiment Parma Number 24 in the Campaigns of 1848 and 1849."

FRANCE.—*Revue du Cercle Militaire.* Paris: 2nd October, 1897.—"The International Exposition of the Army and Navy in 1900." "Operations of the Cyclist Company in the Grand Manœuvres of 1897." "The Combat" (*continued*). 9th October.—"Operations of the Cyclist Company in the Grand Manœuvres of 1897" (*concluded*). "The Episode of Bricon." "The Combat" (*continued*). 16th October.—"An Incident in Colonial History." "The Combat" (*concluded*). "The Re-organisation of the Italian Army." 23rd October.—"Concerning Provisional Instruction in the Service of Infantry in the Field." "On the Present State of the English Army." "Special Exercises Ordered by General Dragomiroff." 30th October.—"The Death of Lieutenant Biétrix." "On the Present State of the English Army" (*continued*). "Observations on the Service of Security on Stations."

Journal des Sciences Militaires. Paris: October, 1897.—"The Danger of Militias" (*continued*). "Napoleonic Maxims." "The 3rd Italian Army Corps at Magenta and Solferino." "Studies on the Campaign of 1796-97 in Italy" (*continued*). "Infantry Manœuvres—the Regulations of the Future." "Notes on the Russian Army."

Revue d'Artillerie. Paris: October, 1897.—"Description of the Spanish Methods of Field Artillery Fire." "Nitroglycerine Smokeless Powders." "The Electric Units." "Ballistic Table for Determining the Angle of Descent."

Le Spectateur Militaire. Paris: 1st October, 1897.—"General Bourbaki." "The Military Education of the Young." 15th October.—"Studies on the Discipline of the Army." "Free, Captive, and Navigable Balloons."

Revue Militaire de l'Étranger. Paris: October, 1897.—"The Game of War Abroad." "The New Regulations for Field Service in the Austro-Hungarian Army" (*concluded*). "The Re-organisation of the Italian Army" (*continued*).

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Rivista Militare Italiana. Rome: 1st October, 1897.—"Progress of the Principal European Armies." "Employment of Sappers in the Field" (*concluded*). "A Retrospective Glance on the Events of the Recent War in Thessaly." "Politico-Military Notes." 16th October.—"Progress of the Principal European Armies" (*concluded*). "A Retrospective Glance on the Events of the Recent War in Thessaly" (*continued*). "Rule, Britannia." "Among the Books." "Politico-Military Notes."

RUSSIA.—*Voiénnii Sbórnik.* St. Petersburg: October, 1897.—"Science as an Element Favourable to Peace." "The True Meaning of Independence of Command in War" (*continued*). "The Turkish Campaign of 1877-78." "The Preparation of Infantry for the Duties of Observation and Reconnaissance."

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SPAIN.—*Memorial de Ingenieros del Ejército.* Madrid: October, 1897.—"Some Data for the Outlines of Defence, Fortification, and Armament of Naval Stations." "How the Sappers are Armed and the Tactical Regulations." "Balloon Ascents." "The United States Heliograph." "The Theory of Explosives."

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SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: October, 1897.—"General Bourbaki." "The Cavalry Remount in Switzerland." "Quick-firing Field Guns of 75 millimetres."

UNITED STATES.—*Journal of the U.S. Artillery.* Fort Monroe, Virginia: September-October, 1897.—"The Probability of Hit when the Probable Error in Aim is Known." "A Reply to the Report of a Board on Sea-Coast Mortar Fire." "The Theoretical and Practical Training of the Light Artillery Gunner." "Indirect Fire." "History of the Sea-Coast Fortifications of the United States."

Journal of the Military Service Institution. Governor's Island, N.Y.H: November, 1897.—"Increase in the Artillery." "Tendency of Evolution in the Army." "The Bicycle in Military Use." "The Fighting Unit in Coast Defence." "A Modern Signal Corps." "Gymnasium Training in the Army." "The Mauser Self-loading Pistol."

NOTICES OF BOOKS.

The Benin Massacre. By CAPTAIN ALAN BOISRAGON, Commandant of the Niger Coast Protectorate. London: Methuen and Co.

Captain Boisragon, one of the two European survivors of the ill-fated expedition to Benin, tells the story of the expedition, and the treacherous massacre at Egoru, in a simple and manly fashion. He makes no attempt at discussing questions of politics or policy; but, after a brief and well-told description of Benin, historically and geographically, describes the route and progress of the expedition, its terrible ending when almost at the gates of Benin, and the fearful hardships and sufferings endured by himself and Mr. Locke in their escape through the deadly jungle. Of what the two survivors went through no conception can be formed by those who do not know what West African jungle is, or who do not read Captain Boisragon's book for themselves. Both men were badly wounded: Boisragon with a charge of pot-leg—made by breaking up iron cooking-pots into small jagged pieces—fired into the inside of his right arm at some five yards; Locke struck with pellets four times in the arm and once in the hip. The massacre took place on the 4th January, and from that till the 9th they had no water, except what they could suck from the dew. Their wounds festered and putrefied, especially Boisragon's, whose arm had become "perfectly loathsome, and anyone could have easily tracked us by the droppings off it." The thorny undergrowth rapidly reduced their bodies to a condition of bleeding half-

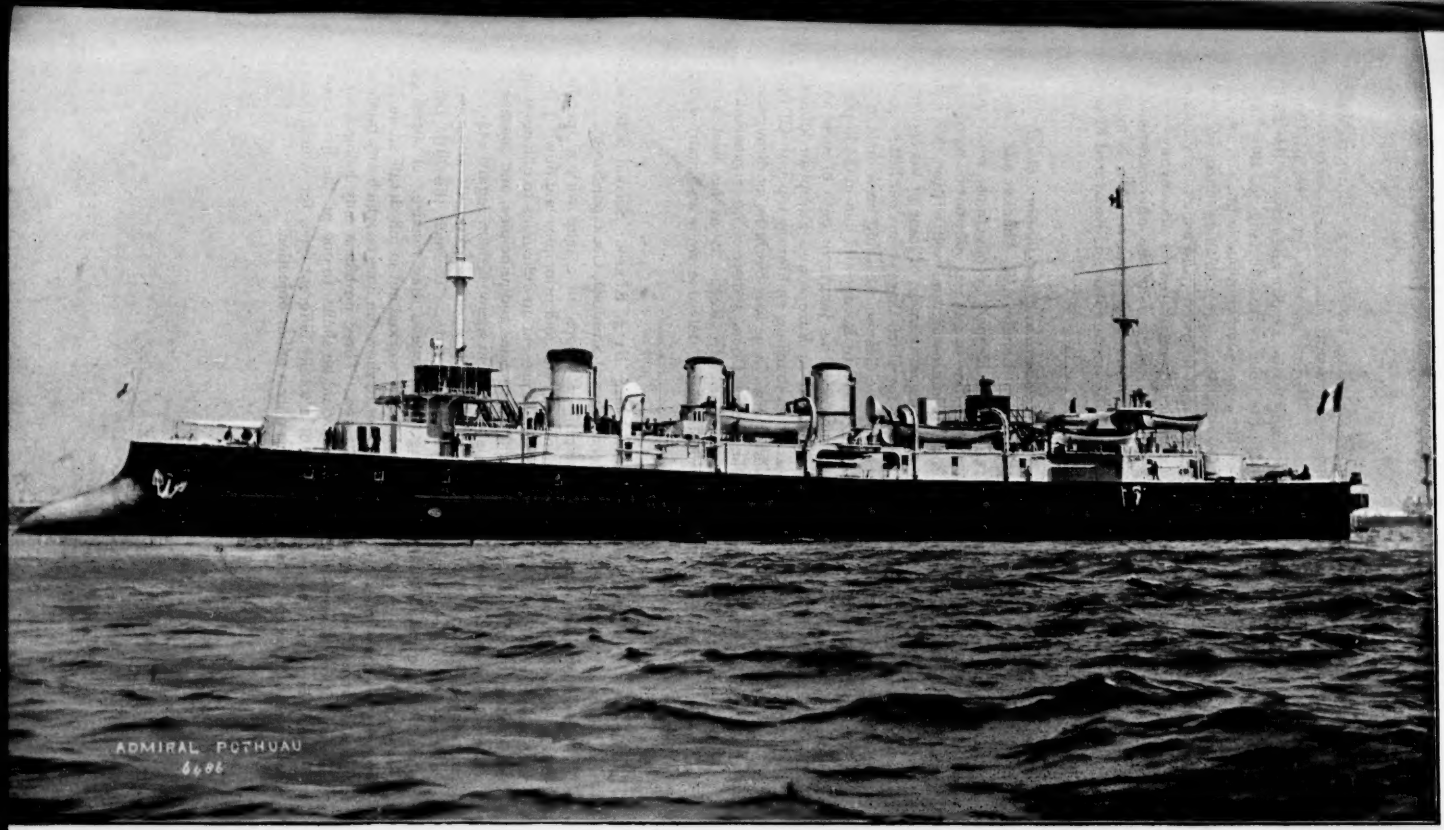
nakedness, and myriads of mosquitoes added to their misery. In short, their survival shows that both must have possessed exceptional grit and pluck mentally, and magnificent constitutions physically. Perfect samples, in truth, of those military pioneers whose work lies in building up the Empire and making the dark places of the earth light. Luckily for the country they belong to, they have survived to yet do good work, and that they may long continue in her service will be the hearty wish of all who read Captain Boisragon's thrilling narrative. A short description of the punitive expedition that followed—and which, to Captain Boisragon's great regret, he was not sufficiently recovered to accompany—concludes the book; and that the taking into our own hands of the administration of Benin City and District was not only expedient, but an imperative duty, is amply demonstrated by the description of the ghastly horrors therein, discovered by our troops after its capture.

A Servant of "John Company," being the Recollections of an Indian Official. By H. G. KEENE, C.I.E., Hon. M.A. Oxon. London: W. Thacker and Co.

Unstinted praise cannot be given to Mr. Keene's recollections, which are practically an autobiography. As a contribution to general information as to the social conditions that prevailed in India it is interesting and well written, but it is marred by diffuseness, a but slightly veiled disparagement of some of his contemporaries and a sense of having been ill-used, for which there seems but little cause. Mr. Keene's Indian career would seem to have disappointed, and been distasteful to, him, and he admits that he fretted "to return to Europe and join in the literary life of London." This bias probably influenced his judgment both of men and affairs. Many pages of the work are devoted to Europe and European affairs, and Mr. Keene is never so happy as when touching on literary topics. Of the more stirring events of the Mutiny period Mr. Keene saw but little, as throughout its duration he was in charge of the Dehra Doon, a district he succeeded in keeping practically free from disturbance. Mr. Keene is at his best as a *raconteur*, and evidently loves a good story, and tells one well, and many such will be found in his pages.

Problems in Applied Tactics, with Solutions. By J. BÜRDE. Second Edition. Revised and enlarged. London: Edward Stanford, Cockspur Street.

Notwithstanding that the manœuvring of troops on a map with a specific object in view is merely illustration of the rules and principles laid down in the tactical portion of the Drill Book, and should present no difficulties to officers who have made themselves acquainted with these rules and principles, and possess a reasonable share of common sense, it is a fact that many of them regard a tactical problem as a conundrum, the answer to which must be guessed rather than logically developed from the principles referred to. To such this little book should be of great assistance as giving them the lead they require. A series of seven problems is given, and each is carefully worked out in full detail so as not only to form examples in similar cases, but to show the lines on which any tactical question should be reasoned and answered. Three problems only being added in this edition, it seems a pity that one should be similar to one of the first four. It would have been better to give one of a totally different type, for which there was plenty of room. This, however, is only a minor objection.



J. J. Kelliher & Co., London.

See Naval Notes, page 1,554.